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THE
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The First Ascent of Brussels Peak

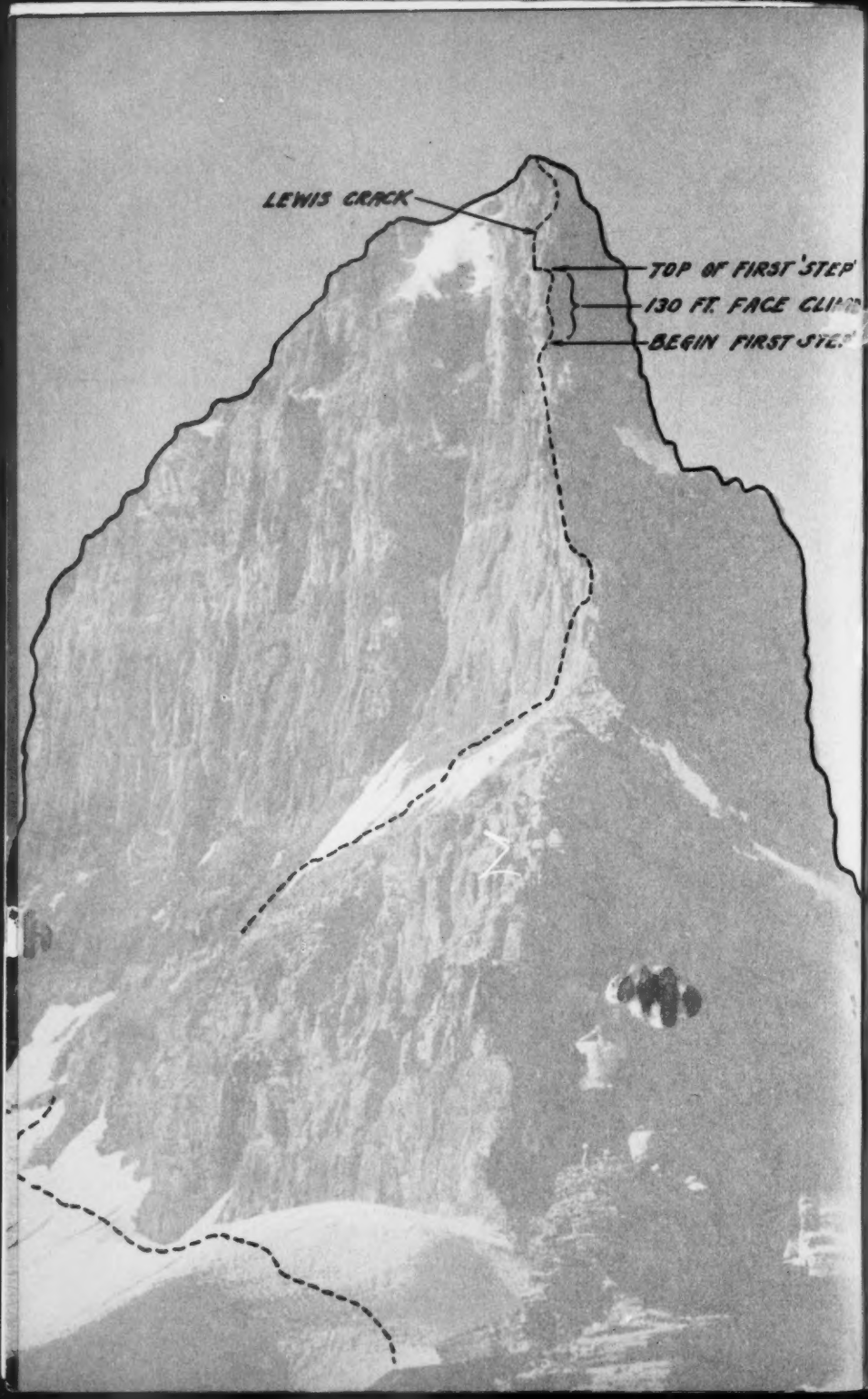
RAYMOND C. GARNER

IN THE SUMMER of 1947 my wife and I spent two and one half months making movies in the Canadian Rockies. We travelled the Banff-Jasper highway many times, and became quite familiar with the view just south of Athabaska Falls, where we could see the black tower of Brussels off to the west. Its position and topography alone presented a challenge, but the real challenge lay in the stories of the attempts to climb it, for some of the very finest British, Canadian and American mountaineers had come to grips with the mountain.[1] In addition to reported attempts, there must have been scores of others. Frank Wells, packer and outfitter at Athabaska Falls, told us that he had been packing parties into Brussels for over twenty years. Here were both a challenge to quicken the pulse of any mountaineer and a story worth photographing. When we decided to make a 16-mm. film called "First Ascent," to be used for lecturing purposes, the Harmon Foundation of New York City agreed to finance the project.

In early July of 1948 we left Phoenix and drove to the Tetons in Wyoming to pick up two members of the Kachinas (Kachina Mountain Club of Phoenix, Arizona) who were just finishing their climbing program. Here we were greeted with the tragic news of

[1] A report that the first ascent was made in 1946, and that the climb was repeated in 1947, was in error. The note in *A.A.J.*, VII (April 1948), 111, should therefore be disregarded.—*Ed.*

BRUSSELS PEAK FROM CHRISTIE-BRUSSELS COL.
Photo, F. S. Swanke


LEWIS CRACK
TOP OF FIRST 'STEP'
130 FT. FACE CLIMB
BEGIN FIRST STEP

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The First Ascent of Brussels Peak

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BRUSSELS PEAK FROM CHRISTIE-BRUSSELS COL
Photo, F. S. Smythe

Win Akin's death on Nez Perce.[2] Ed George and Ben Pedrick had intended to go with us to Canada, but Ben had been with Win on Nez Perce, and he decided to go back to Phoenix with Win's parents. We needed a third climber for our film, since my wife Virginia would do some of the shooting but would not appear in the pictures. Jack ("Jiggs") Lewis, of Glencoe, Illinois, had planned to spend the summer guiding for Paul Petzoldt and Glenn Exum in the Tetons. Jiggs jumped at the invitation to join our party.

We left the Tetons on July 14th and on the 16th made camp near Jasper. We learned that Fred Ayres and Don Woods had been in to Brussels, but had had bad weather. We also heard that Fred Beckey and his party were still in at the peak. Our hearts sank. As we had read many accounts of Beckey's climbs, we figured that our mountain—and our film—were gone. But Beckey's party finally came out, and the mountain was still unclimbed. We were just about to sigh with relief when we heard that John and Ruth Mendenhall had been up Fryatt Creek for a week—with Brussels as their objective! It looked very much as if we should have to change the title of our film.

On July 18th we packed into the old A.C.C. camp in Fryatt Canyon. We four (Ed George, Jiggs Lewis, Virginia and I) walked in carrying the movie camera (EK Ciné-Special) and accessories, plus clothing and some food. The bulk of the food, and all of the climbing and camping equipment, rode in on two pack horses. We were prepared for a long siege of the mountain.

The next morning we started up toward our objective, carrying all climbing and camera equipment. Before reaching the base of the mountain, Jiggs and I took all four loads in two tremendously heavy packs, so that Virginia and Ed could go back to the A.C.C. base camp and bring up the camping equipment. At Lake Fickle, so named by us because of its tide-like rise and fall, we met the Mendenhalls. John and Ruth had reached the base of the first "step," but could not find a safe belay point to justify climbing the black chimney to the east. At long last we could relax: the mountain was ours—if we could take it.

Jiggs and I went on to the Christie-Brussels saddle. We left the

[2] Mr. Akin apparently lost his balance or tipped over a slab while taking a photograph from the summit of Nez Perce. He was unroped at the time and was killed instantly by the fall.—*Ed.*

movie and climbing gear in a cache near the stone windbreak erected by Ayres and Woods last year. Then we descended to Lake Fickle to find that Ed had pitched a tent and had supper cooking. Virginia had gone down to the A.C.C. camp again after carrying up two loads of gear. Fortunately, the Mendenhalls had warned us of the vagaries of Fickle, and so we moved the tent a good 12 feet higher than the platform where Eddie had pitched it. After supper Ed descended to the A.C.C. camp.

The next morning Jiggs and I left the lake at 8.00 A.M. and reached the saddle shelter in two and one half hours. It was a beautiful, warm, sunny day. We traversed the first portion of the Northeast Ridge by walking the snow atop the glacier up and into the second broad chimney. This chimney of shale and loose boulders brought us to a sloping shelf where we changed from "Bramanis" to sneakers. Here we roped up and climbed a narrow chimney 40 feet to a notch on the ridge proper. We found an old sling rope around a boulder at this point.

We placed a tamp-in ring bolt for protection. (This method was developed by Ben Pedrick, of the Kachinas. A hole, one half inch in diameter, and about one inch deep, is drilled with a spiral-type steel drill. This goes in much faster than a star drill. Then the lead-sheathed tamp is set in place with a special tamp tool. A 5/16-inch eye bolt is then screwed into the steel core of the tamp. Four of these bolts were placed at various points along our route, but for protection only. No direct aid was used.[3]) Jiggs led up a nearly vertical face, about 15 feet, to the base of a narrow chimney. He continued on another 35 feet and emerged on the summit of one of the main pinnacles of the ridge. Here he found a sound piton in place and worked a secure belay through a karabiner.

It was little more than a scramble along the top of this ridge to the base of the first "step," but the exposure and looseness of the rock made it quite sporting. At one point it was necessary to step across a yawning void to the shoulder of a delicately balanced pinnacle. At another the way led across a split cat-walk with a drop of several hundred feet on either side. We climbed to the accompaniment of falling rock. When we reached the base of the first "step," we found the rock quite firm.

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[3] See also the note on page 230, below.—*Ed.*

From all the information we had been able to gather, this was as far as previous parties had gone. Mendenhall spoke of the black chimney on the left (east). This apparently would go for about 80 feet, but it was blocked by huge chockstones farther up. If good climbers, over the years, had been unable to find a safe way up this chimney, it was only logical to look for an entirely different route. The face on the right (northwest) was vertical, seemingly overhanging in places, but the rock was as firm as any we had ever climbed on. This might prove to be the key to the mountain.

We placed a "tamp-in" for a belay near the base of this pitch. I led out on a diagonal traverse to a small ledge about 40 feet from the starting point. An insecure piton gave some degree of protection while I drilled a hole for another "tamp-in." Anchored to this tamp, I belayed Jiggs up to the small ledge, where we both sat and rested. The ledge was barely large enough to support us, and the exposure made us feel like flies on a wall.

We tried a courte échelle up the slightly overhanging brow above this ledge, but I was still unable to reach a secure handhold. With Jiggs belaying through the tamp, I finally was able to by-pass the overhang to the right. I continued up and found a narrow chimney which led up another 40 feet before it was stopped by a chockstone. Jiggs joined me. Then I worked out to the right, entered another vertical chimney, and so reached the broad platform at the top of the first "step," a total distance of 130 feet from the base. We now stood higher on the mountain than anyone had ever been before. Above us, apparently less than a rope length, were pinnacles of the summit ridge. (Later, on actual measurement, this proved to be a good 200 feet!)

It was now past 5.00 P.M. We could go on and finish the climb, for Jiggs had found a possible crack on the left; but we decided against it. We did not have enough nylon to leave a fixed rope here, and we should have to climb it a second time for the movie.

On the descent we left a fixed rope the length of the first "step," tying an extra 60 feet to our 120-foot rope to make it reach. Farther down, we left another fixed rope from the old piton on the ridge to the sloping ledge where we had left our "Bramanis." Later in the evening we reached Lake Fickle, to find that Virginia and Ed had packed up more equipment and had established camp for all four of us there.

The 21st was a day of rest. The weather was glorious. Ever since, we have regretted wasting it. In the afternoon Jiggs and Ed went down to the A.C.C. camp again and brought up air mattresses and more food.

At 5.00 A.M. on the 22nd all four of us started up to the saddle camp, carrying sleeping bags, two air mattresses, food, and a poncho. At 8.00 A.M. we reached the saddle shelter, where Virginia remained, for three could move faster than four. She watched the entire climb through binoculars. Ed, Jiggs and I—lugging all the photographic equipment—retraced our route of the 20th up to the base of the first "step," taking a few movie shots en route. The face climb, which I had led two days before, now proved too much for me even with a fixed rope! I got up to the small ledge where the tamp was placed, but could not negotiate the overhang. So steep was the angle of the face that my feet would not remain in contact with the rock when I tried to go up hand over hand. Jiggs joined me on the small ledge and caught me as I fell back three times. Then he took over and went up on the sheer strength of his arms.

Belayed from above by Jiggs, I hoisted up the heavy camera pack, and then brought Ed up to the ledge. Jiggs again belayed me as I worked up to the top of the first "step," dragging the camera pack all the way. Then Ed joined us. Since skies had clouded over, we were not able to take any movies of this portion of the climb, but we planned to carry the camera to the summit and get some shots on the descent, weather permitting.

We climbed around the base of the second "step" to the east. Here we could see the crack that Jiggs had found on the 20th. I went up about ten feet, placed a piton, and then dropped back to the ledge. Jiggs started up the narrow crack. He placed another piton a few feet higher. Meanwhile a storm was gathering. It began to rain!

Now the section of the cliff containing the crack bellied out into a slight overhang. Jiggs made a wonderful lead past this overhang, using every muscle of his body plus what we like to call the "flesh-crawl" technique. For several seconds, as he rounded the bulge, his legs stuck out into the air. When he finally grunted past the place, he drilled a hole and placed a tamp for security. He then continued up a chimney for another 30 feet. Here he found a belay point and

was able to protect me as I climbed up. We pulled the camera pack up past the overhang and tied it securely to the tamp.

When I reached Jiggs, there was not enough room for both of us on the ledge, so he continued up another 20 feet. It was raining quite heavily now. As I started to join him, a bolt of lightning struck with terrifying suddenness. Eddie, 60 feet below, felt his beard and woollen hat tingle with the current. Another bolt struck—all too close for comfort. I scrambled up to Jiggs and we divested ourselves of pitons, karabiners, drills, and hammers. We hung all this iron on a rope and lowered it a safe distance.

Jiggs had a crack he could squeeze partially into, but there was no room for me. I had to stand out on the sloping ledge in the rain —and completely exposed to the lightning. It struck again—much too close. Jiggs stayed in the crack, but I climbed out onto the ridge to the right and up over a block which put me about 20 feet above him.

We stayed here about half an hour. The lightning stopped for a bit, but the rain continued. I was just about to call to Jiggs to join me when the rock I was leaning against began to buzz with electricity. I quickly moved up another 30 feet and crouched under a shallow overhang. We were scared—and that's an understatement!

Now we had to make a difficult decision. Prudence demanded an immediate retreat, but we should not have been where we were if we had been prudent. Bad weather in the Canadian Rockies commonly lasts a week or more in midsummer. Through rifts in the clouds I could see the beginning of the summit ridge a short way above. It seemed to be an easy scramble to our goal. We should be hours on the retreat, anyhow, so we decided to take a little extra time and make a dash for the summit.

I called to Jiggs to come up. While he was pulling up the iron, I heard him call out in dismay. I soon learned that all of the pitons and karabiners had fallen! This put us on the spot. We were going to need those pitons for rappelling. None of the boulders on this ridge would safely hold a rappel sling.

Fortunately, Jiggs was still in verbal contact with Eddie, who was able to fasten some spare pitons and karabiners to the rope. As Jiggs drew them up, they wedged tightly in a crack from which

GARNER AND GEORGE 200 YARDS BELOW CHRISTIE-BRUSSELS COL.
Photo, Virginia Garner

Jiggs could not dislodge them from above. The rain had turned to sleet, making our problem all the more difficult, but Eddie solved it for us by climbing up and dislodging the iron by hand. Then he climbed back down to his ledge and voluntarily gave up his chance of reaching the summit. Ed knew that two could move twice as fast as three, and time meant everything now.

By the time Jiggs reached my ledge, all precipitation had stopped and we thought we might get a break in the weather. Two more short pitches (which would have been very easy under dry conditions) brought us to the top of the first pinnacle of the summit ridge. About 100 feet farther on rose another pinnacle, still higher. We had to exercise great care here because of the wet rock—and because we were both tingling with the excitement of probable victory. From the top of this second pinnacle we saw the summit, still 100 yards distant; but we knew it was ours.

The third pinnacle was composed of fantastically balanced blocks of rock. These could not be surmounted with the slightest guarantee that they would stay in place. We descended some 15 feet to the right and traversed on a horizontal ledge. The fourth pinnacle was quite easy. From here it was but a short walk to the highest point. We reached the summit at 5.00 P.M., nine hours from our camp on the col.

The summit itself was not a rock pinnacle, but a curving mound of loose shale which looked as if it had just slid out the rear of a dump truck. It was a very unspectacular summit for a very spectacular mountain.

For Jiggs there were two reasons for rejoicing, for this was also his twenty-first birthday. We had little time for celebrating, however, as another storm was rapidly sweeping in from the west. We hurriedly threw up a small cairn, placed the record of our climb in a plastic waterproof match case, and began the retreat just as the second storm descended upon us.

We climbed down to the place where I had heard the rock buzzing and there placed a piton. A short rappel brought us to the ledge where Jiggs had waited out the electrical storm. The wind now was howling around us. We were thoroughly soaked and very cold.

BRUSSELS PEAK FROM THE NORTH
The top of the first "step" can be seen one-half inch below the summit on the left. Route follows left skyline

Photo, Virginia Garner

It began to snow. It was very difficult to place pitons with our numbed and bleeding fingers, cut by the sharp rocks. We finally managed to put in two, and had just enough sling rope left to carry a loop over the edge of the ledge. We tied two 120-foot nylon ropes together, and Jiggs went down first. Just above the bulge he stopped and hung on by one hand as he recovered the camera pack. This was quite a feat in the cold and wet. This 100-foot rappel, plus a 20-foot traverse, brought us to the top of the first "step."

Here we found Ed in terrible shape. He had waited for us on an exposed ledge where there was no protection from the elements, and not enough room to exercise and maintain bodily warmth. He was blue with cold and vibrating like a Model T. He looked like a pneumonia case for sure.

At this point we had our sling already prepared, the one we had hung the fixed rope from on the 20th. The distance to the base of the first "step" was 130 feet. Since it would be impossible to recover the ropes if we used two 120's, we decided to sacrifice one of them. Accordingly we tied an extra 60-footer to one rope and rappelled down to the ridge. I went last, carrying the camera pack. The wet rope and heavy pack fouled me up, and I slid past the ridge about 30 feet to the right. Ed had to use all of his strength to pull me back. The hauling worked wonders for him. From this point on he took care of me, and so forgot his own condition. I was able to climb up ten feet and untie the extra 60 feet of nylon, abandoning the 120. This rope will mark our route to the summit for future climbers.

The journey down that terrible ridge, in the cold and wet and gathering darkness, was a nightmare. When we reached the place where the first fixed rope had been, we did not have the energy left to fuss with a double rope rappel. We slid down a single fixed rope, abandoning another 120 feet of nylon. At the base of this rappel we changed back to our "Bramanis" and scrambled down the wide chimney to the snow, reaching our saddle camp at 9.30 P.M. Virginia had hot bouillon waiting for us, but had been unable to keep the sleeping bags dry. We spent a wild night in wet bags under a small, leaky poncho, with all four of us wedged between the narrow walls of the shelter.

At dawn on the 23rd a watery sun greeted us. As this soon disappeared behind a new bank of storm clouds, we started down,

leaving the cameras and some food in a cache. We intended to make one more attempt to shoot our film. We reached Lake Fickle at 10.00 A.M., but the mountain had had its revenge. The entire little valley was flooded, *and just the very top of our tent showed above the surface of the water!* All of Virginia's exposed still film was on the floor of that tent. Fortunately, the other tent was up high on the bank, together with the remainder of our food supply. We were able to dry out some of our things over a fire before it started to rain again that same evening. It continued throughout the night and all the next day.

At dawn on the 25th all four of us again climbed up to the col. Here we found that what had been rain at the lake was snow at this altitude. We had difficulty digging out our equipment from the cache. Despite a chilling wind and snow on all the ledges, Jiggs went on ahead and climbed up to the point on the ridge where we had left the last nylon. He recovered it: Jiggs can not abide waste. We watched him through holes in the clouds. While we waited, we packed up all the equipment that had been left in the cache, including cameras, climbing irons and food. As soon as Jiggs arrived, we started down. It had grown extremely cold, and another storm was threatening.

At Lake Fickle we added all the sleeping bags, clothing and tents to our packs, and continued right on down to the A.C.C. camp. That night we ate all the remaining food in a tremendous feast. The next morning we shouldered light packs for the 12-mile hike out to the highway, leaving all the heavy equipment to be picked up the next day by pack train.

As we drew away from Brussels, we kept looking back over our shoulders, half expecting it to turn into a volcano and deluge us with lava. It had already hit us with just about everything a mountain could throw.

We had climbed our mountain. We had taken the old black devil, and we had taken him under very difficult conditions. But we had failed to make our film.

Alberta and the Silver Ice-Axe

JOHN C. OBERLIN

"WE CAME from Japan so far called by this charming great mountain." The paper was carefully folded and tucked in a recently emptied tin can to be placed in the hurriedly constructed cairn on the summit of Mount Alberta. The date was 21 July 1925, and the time 7.35 in the evening. Yuko Maki carefully ascended the summit cornice and looked silently about him at the ring of great peaks. His mission was accomplished.

As the party of six Japanese and three Swiss guides began to work their way slowly back along the knife-edge arête, something on the peak flashed with silver and glittered with gold in the last waning light of the sun. An ice-axe had been left standing proudly in the cairn.

Twenty-three years later, almost to the day, Fred Ayres and I were sitting in his car at Jasper, glowering at the steadily descending drizzle. It was not a new experience, and it brought a feeling of frustration. We had both been giving thought to Mount Alberta, and for several years past had collected photographs and read what scanty descriptions of the mountain we could find. Bad weather and back luck had beaten off all attempts by various parties to reach the summit of the sixth highest peak of the Canadian Rockies, and the cairn remained unvisited. In the meantime, the legend of the ice-axe was assuming fantastic proportions. It was of silver, the gift of the Crown Prince, now Emperor, of Japan. In a few more years it would have been of gold set with rubies.

From a study of photographs I had convinced myself that the northwest ridge might be the answer, but Rex Gibson assured us that both it and the large gully to the west were out of the question, judging from a near aerial reconnaissance. This left the route of the first ascent as the only possibility, which was far from encouraging, since that party had taken 16 hours to reach the summit and had indulged in such feats of acrobatics as three-man ladders on the way.

When, much to our surprise, July 28th dawned clear, we hurriedly broke camp, bought supplies, and bumped down the highway en route to Milepost 57. After stopping at Warden Brennan's cabin for a final check-out, we turned the car off the road at the gravel flat by the old log shanty and made up our packs. While we were so engaged, Ray Garner and his party, on their way back to Arizona after accomplishing the first ascent of Brussels Peak, stopped by to wish us luck. Ray, most optimistically, advised us to take a jar of silver polish along.

The Sunwapta was forded with some effort, as the water was high, and we made things unnecessarily difficult for ourselves by going a bit too far upstream. We then followed the gravel flats south, crossing the tributary stream where it flows into the Sunwapta, and hung our wading shoes in a tree to be reclaimed later. A handsome falls thundered into the little box canyon, but a fine game trail was easily found ascending through the woods to the left, as promised. It was now after 5.00 P.M., so we shouldered our frame packs and started doggedly uphill. The trail followed close along the crumbling edge of the cliff for a considerable distance; and, when this finally petered out in the upper reaches, it was not difficult to make our own way along the bank.

Reaching the point where the entire valley is blocked by the snout of a glacier coming down from the left, carrying a load of huge morainal boulders, we decided to make camp at timberline just beyond. It took us an hour to work our way through this barrier, and we became thoroughly disgusted at such practical jokes. A grassy knoll decked with small spruces led us to a level spot protected by a large boulder. Here we quickly pitched our tent. It was about 8.00 P.M. and beginning to rain again. Fred fought a winning battle with the damp firewood I collected, and we retired to the soporific patter of raindrops on the tent roof.

It was still pattering steadily next morning, and we lay in our sacks until Fred was driven by hunger to tackle the breakfast problem. When I eventually crawled out, large clouds of smoke and steam were rising from the "fire," and some time later breakfast was ready and quickly consumed. Fred scrambled up to investigate a small hanging glacier, while I gathered more firewood and amused myself by building a cairn. When the rain freshened I would retreat to my sack. It began to look as though we should not even see Mount Alberta, much less climb it.

After lunch the rain stopped, and we decided to break camp and move into position for attack in case, by some amazing stroke of good luck, the weather should perhaps clear. At 3.30 P.M. we were again on our way, and a short stroll took us to the moraine of the glacier below Mount Woolley. The ice was reached via some easy slabs to the left of the stream coming from its tongue, and we ambled up the gently sloping debris-strewn surface with the medial moraine to our left. This moraine leads to a steep scree slope crowned by a broken cliff, and we debated which gully was the true route. None looked too attractive to us with our heavy packs.

Picking the last wide gully to the right, we found that it took us to the scree saddle above without any difficulty other than the usual treadmill antics. The view which suddenly greeted us was most dramatic. Although we had climbed 4000 feet from the Sunwapta, Mount Alberta now towered above us, black and threatening, with clouds covering the upper portion of the summit ridge exactly as in one of A. O. Wheeler's old photographs I had brought with me. The Twins and Mount Columbia rose from the gloomy depths of the Athabaska Valley in unbroken precipices, their flanks ornamented with snow and hanging glaciers.

A few hundred feet below us and in the direction of Mount Woolley was a black area of rock with a snow patch above and scree and the glacier below. Having dropped down to this, we cleared a place for the tent and built a rock wall windbreak, as the breeze was anything but gentle. Water was obtained from the snow patch drainage, and we heated chicken noodle soup over Heat Tabs, It was after 8.00 P.M. There was no reason for optimism about the weather or the mountain, and we retired without much hope of a real attempt on the peak next day.

When the luminous dial read 3.55 A.M., I informed Fred, who grunted but nevertheless promptly crawled out of the tent. His announcement of a clear, starry sky brought me out after him, and we hurriedly breakfasted and made up our packs. In addition to the 120-foot nylon climbing rope, we took 150 feet of nylon line, sling rope, pitons, extra clothing and food. We were destined to use them all.

AYRES-OBERLIN ROUTE ON MOUNT ALBERTA
Photo, F. D. Ayres

At 4.40 A.M. we were on our way across the glacier, rounding the north end of Little Alberta and dodging several large sink-holes en route. At 6.10 A.M. we left the glacier behind and swung south around the mountain up easy scree below a series of snow fields. The view from the col yesterday had suggested a roundabout route which might avoid most of the difficulties with the lower cliff bands.

As soon as we were beyond the last of these snow fields, we turned up easy scree ledges until these steepened into a cliff, and then followed the base of the latter to the left and around a corner to the west. This brought us to the flank of a large snow field on the south end of the mountain. A short climb up its near edge took us to a little gully, which brought us out above the cliff, and we continued angling steeply to the right up a series of scree ledges to a wide scree bench. This in turn led to the right (east) around a corner and into the foot of a long steep gully which was ascended by its left side, the last few feet providing the first real climbing of the day and bringing us out on a little, semi-detached spur. Stepping across a narrow gap, we clambered up onto a broad scree shelf or slope beneath the ominous black cliff which bands the entire upper portion of the mountain. A few small rocks came bounding down to greet us.

Since we were still a bit too far south, we followed the shelf to the right beneath snow patches and low rock steps down which water dripped. Here, at about 8.20 A.M., we had a snack at an altitude even with the summit of Little Alberta (9700 ft.), quite pleased with our progress but keeping a sharp lookout for the falling rocks.

Continuing around the base of the south tower, we scrambled up to the foot of the first gully to the right (9.10 A.M.), which seemed to offer an opportunity to continue angling right. The rock was steep and somewhat wet, and its rottenness gave me a feeling of considerable exposure.

Several uncomfortable pitches brought us to a long horizontal ledge about six feet wide and pretty well covered with snow, which we traversed right until we could climb to a similar, but narrower, ledge 20 feet above. Fred believed he could climb the very nasty "gully" overhead, but I was certain that I could not do so safely, as

NOTCH IN SUMMIT RIDGE
Note handline and tracks in background
Photo, F. D. Ayres

it was very steep, shallow, wet, rotten, and completely exposed without any chance for a belay. I therefore voted for dropping back down to the wider ledge and following it around the corner into the next real gully to see what might offer. This we did, and after a short pitch up the intervening rib came out on a little knob decorated with a very old rope sling hanging down on the gully side. Whoever had left it there must have had an experience comparable to rappelling down an elevator shaft.

A long, narrow, upward-slanting ledge leading into the gully was followed without much difficulty; but it was obvious that our real troubles were about to begin, so we roped up. When this ledge petered out, Fred led up the convex side of the rib to his left, where he found a good belay, and I came up protected by the rope. This was one of the more difficult and delicate pitches of the climb, although I took a route slightly more to the right, which appeared to be a bit easier.

We now traversed out into the gully to the foot of a narrow chimney backed by snow. I struggled up, using the snow for the most part, and eventually broke through below a chockstone waterfall, going practically out of sight. After I had dragged myself out of this hole, with a certain amount of bad language, we continued up the chimney for a considerable distance until it opened out into a more broken section of the gully. Again traversing up and to the right, we entered another narrow snow- and ice-backed chimney, where I kicked a ladder of toeholds while Fred preferred the steep rock rib to the right. Several more pitches up the rib and slightly to the left found us perched on the summit arête at the third point from the south end of the mountain. It was 4.05 P.M.

Our first reaction was one of relief that the worst was now over, quickly followed by a realization that the actual summit was still far off. We were in fact surprised to discover that the arête was an exceedingly sharp knife-edge, the crest of which had to be followed without the slightest deviation to either flank. Although now at a very considerable elevation, the Twins, Columbia, Stutfield and Woolley were still impressive, and, far below, the myriad channels of the Athabaska River glinted in the sunlight. A small cairn was erected, and we promptly set off up the ridge.

Small cornices were perched here and there, and two rock steps were encountered, the second proving rather troublesome and mak-

ing me happy that Fred was leading here. The cornices steadily increased in size, becoming substantially continuous and greatly slowing our progress as they capped a rock wall so narrow in places that twice, where the rock was exposed, we proceeded *à cheval* with our feet dangling on either side. The weather was good, but the peak was condensing moisture from the strong west wind and forming its own cloud cap, which prevented our seeing any great distance ahead. Suddenly I heard an exclamation of dismay from Fred, in the lead.

The ridge here comprised a steep, thin snow crest along which we had been proceeding by kicking our toes into the western side about three feet from the top, while driving the axe shaft down into the apex itself. Joining Fred, I shared his discomfiture.

We had reached a notch in the ridge at least 60 feet deep, with a sheer drop to the west and an ice slope to the east so steep as properly to be called a wall. This latter slope was thinly covered with snow. There was only one thing to do. Fred drove his axe shaft horizontally into the snow about three feet below the crest on the west side while I extracted the 150 feet of nylon line from my pack. The axe was driven in up to its head and the center portion of the line looped about it, with the two ends brought up over the crest and dangling down the other side about six feet from the point where the ridge broke over into the notch. Down I went, kicking toeholds in the overlying snow until they began to break under me, and then swinging almost to the crest itself where the snow was a little deeper. At the bottom of the notch this crest was so thin and frail that I was forced to lop off the top foot or so before I could even sit astride with each foot thrust into space. A boss of snow was next carved out and the ends of the line, which had been tied together, looped about it. Fred now descended, minus his axe but using the line as a handhold.

The other side of the notch was steep, but not so hair-raising as that we had just descended. From here on I belayed Fred over the worst stretches, but he came along steadily, even in sections where the snow was so steep that I felt it advisable to make handholds for him.

The chill west wind kept the ridge ahead obscured with rolling mist, and still the ridge rose, hovering vaguely above us. Suddenly, a hundred yards ahead, I saw the axe, strikingly silhouetted against

the snow and fog. Fred was yet considerably below me, and my shout gave him his only fright of the climb. Pushing rapidly on, we reached the summit at 6.15 P.M. The cairn was well buried in the snow with but two or three rocks showing, indicating that conditions must have been rather different at the time of the first ascent.

Removing the upper rocks, we found the record in a rusty inverted tin can, quite well preserved considering the length of time it had been there. It is a most unusual document, as may be seen from the accompanying illustration.

The axe was not silver but a good Swiss make, weather-beaten and rusty. On the side of the pick, in large block letters of gold leaf, were the initials "M.T.H." Since the spike and ferrule were frozen in solid black ice between the lower rocks of the cairn, our best efforts could not chop them free. Moreover, the shaft was cracked near its end, so that little leverage could be applied. We were determined to take it with us, partly because we felt that it should be preserved in the museum of one of the Alpine Clubs, but particularly because Fred needed an axe for the return along the ridge to the notch. I had no desire to witness a repeat performance of his balancing act, however expert. (As a matter of fact, I had kept constantly in mind the possibility of jumping through the cornice if he should slip.)

What to do with the record was more of a problem. To return it to its rusty can in the snow-buried cairn seemed tantamount to throwing it in the wastebasket, as it certainly would not last there much longer. We remembered our disappointment at the collection of mushy paper, mostly illegible, we had found on the summit of Mount Assiniboine two years before and decided to take the record to accompany the axe. At 6.30 P.M. we started back along the ridge, leaving a scribbled note in the cairn to the effect that we had found the Japanese axe and record and were bringing them down.

It was now a race against time. To spend the night on that windy ridge was not our chief desire. Since Fred had an axe,

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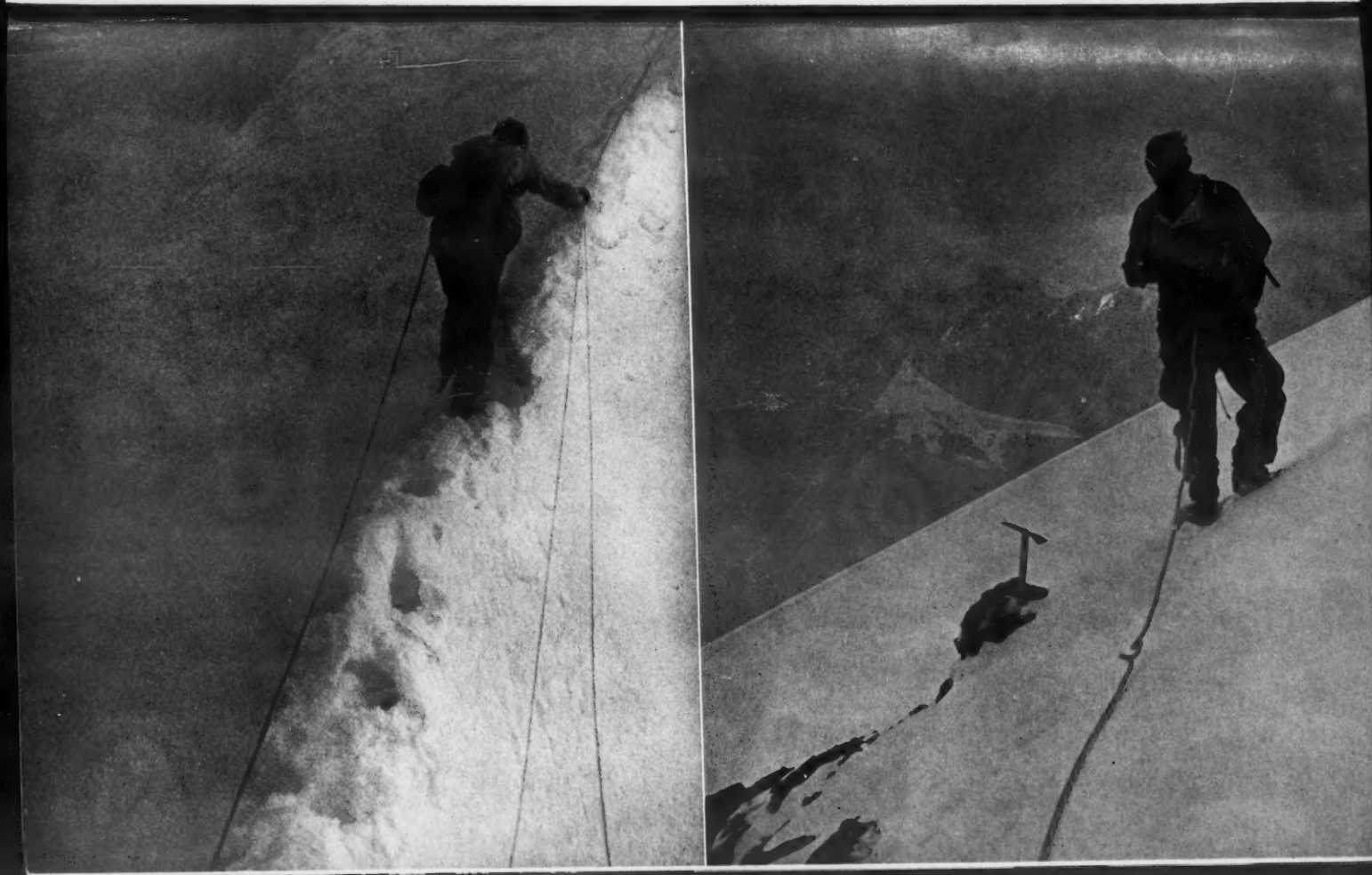
LEFT: STARTING BACK UP NOTCH IN SUMMIT RIDGE
Photo, F. D. Ayres

RIGHT: DR. AYRES AT SUMMIT OF MOUNT ALBERTA
Japanese cairn and ice-axe at left; cornice at right
Photo, J. C. Oberlin



On 21st July 1925

7.35 P.M.

after 16 hours strenuous climbing, We, nine, got to the top of the Mt. ALBerta

Guide.

Mr. H. Fuhrer

Mr. H. Kohrer

as their kind helper

Mr. J. Wiebber S.A.C

these Three swiss Gentlemen so kindly helped us.

Our party six in number

Y. Maki S. Hashimoto T. Haryakawa Y. Mita N. Okabe M. Hatano	J.A.C. we came from Japan so far called by this charming great mountain

even though a broken one, we made good time back to the notch. The climb up the steep wall was as spectacular as the descent had been, and the fixed rope proved most comforting.

Continuing carefully along the snow and rock knife-edge, I was intent on the next step when Fred called out and I turned to look back. A long narrow black cone of shadow shot out from beneath me onto the cloud of mist blowing away toward the east. On the tip of the cone was my own black and gigantic figure encircled by three concentric halos of most brilliant rainbow hues. The Spectre of the Brocken! I had never seen it before but promptly recalled Whymper's graphic description of his descent from the Matterhorn when a similar spectacle completely unnerved his guides shortly after the famous tragedy. To the west the sun was about to drop below the horizon. Fred, of course, saw his own figure instead of mine, and we both gazed spellbound. When the colors faded, we moved on, but 50 yards farther the spectacle was repeated with the colors more dazzling than ever.

At 7.45 P.M. our little cairn marking the point where we had come up onto the summit ridge was regained. Even without this marker it would have been difficult to proceed many steps more along the ridge. A short scramble, a 120-foot rappel, a bit of climbing, and a 90-foot rappel brought us to a series of very small ledges on the rib Fred had ascended while I came up the narrow ice gully alongside. Since it was becoming rather dark and we could recall no equally comfortable (!) spot in the next thousand feet of descent, Fred started clearing off the snow while I argued with the recalcitrant rappel rope which had hung up somewhere. It finally came down, along with a few rocks, and I joined Fred on his very scenic perch.

The perch consisted of a ledge just long enough for us both to sit on—me with my feet waving gaily in the breeze. We tied ourselves tightly to a fairly solid block behind us and also secured our packs with rope. After putting on dry socks and everything else we had with us, we fished food out of the packs and had supper, speculating meanwhile on the meaning of the rather cloudy sky overhead.

LEFT: SUMMIT RECORD OF FIRST ASCENT OF MOUNT ALBERTA

RIGHT: DR. AYRES WITH JAPANESE ICE-AXE
Initials "M.T.H." in gold leaf on pick have been identified as those of Marquis Mori Tatsu Hosokawa, a sponsor of the expedition
Photos, J. C. Oberlin

We had succeeded in getting down far enough to be out of the wind and were not unduly cold, but the time passed unbelievably slowly. In the early morning the clouds disappeared and a cold north wind came up. It made us quiver whenever a puff blew upon us. No exercise was possible, and from 4.00 to 5.30 A.M. we were quite uncomfortable. Fred had been boasting that he was not shivering, but shortly after sunrise he began to vibrate like a tuning fork. We waited until the sun had climbed high enough to provide real warmth before we began, rather creakily, to continue our descent.

Except for several traverses and short descents, we rappelled most of the way down to the old rope sling. The ropes were stiff and wet, kinked badly, and would not run freely about our bodies; we used them merely as handlines, except in the steepest bits. Considerable care had to be taken to dislodge as few rocks as possible. The hot sun, however, was rapidly melting the snow, and numerous small rocks kept coming down of their own accord. Several pitons were employed to take rappel slings, as belays are few on this cliff.

After traversing the large horizontal ledge, we cautiously descended a series of nasty wet steps and with one more rappel arrived at the big scree bench below the black cliff band. More rocks came whizzing past as we traversed the bench to the head of the steep gully. The cairns we had built on the lower part of the route were of considerable assistance in guiding us down. Crossing the glacier in the hot sun was a slow and sleepy business, and it was not until 5.30 P.M. that we regained the tent. A large and elegant meal was prepared over Heat Tabs, and we retired to a night of very sound slumber.

On the morning of August 1st we arose late, breakfasted well, and strolled across the snow toward Mount Woolley, which we would have liked to climb if time had permitted. Here it was possible to photograph Mount Alberta without interference from Little Alberta in the foreground. At about 11.00 A.M. we packed up, broke camp, and quickly scrambled up the scree to the col, where Fred traversed a considerable distance toward Mount Woolley for more photographs, returning at 1.10. The descent of over 4000 feet to the Sunwapta was easy except for the rock-strewn glacier tongue, which blocks the route; but when we arrived at the river we decided to take advantage of the lovely campsite and cross over

the next day. Mount Athabaska up the valley was gorgeous in the light of the setting sun.

This time, on crossing the Sunwapta next morning, we picked a spot considerably downstream, where it breaks into many channels, and we had no trouble at all. Arriving in Jasper, we lunched with the Ed Brennans and reported in to the warden. After a chat with the Superintendent, who remarked that he had been told the story of the silver ice-axe on Mount Alberta when he first assumed his duties in the Park, we had a visit with Mr. J. A. Weiss, who still corresponds with one of the Swiss guides who took part in the first ascent. Fred and I then climbed into the car and set off to Maligne Lake for a rest cure.

A Bugaboo Adventure

Fred Beckey

AS RALPH Widrig, Joe Hieb and I trudged to camp at timberline with heavy packs, the solid granite of the Bugaboo Spires looked inviting, for the poor rock we had encountered in the Rockies, excepting only on Mount Louis, had caused our interest to wane. Hours of road-building on the previous day had tired us; but, as July 17th dawned clear, and frisky mosquitoes displayed unusual interest in our arrival, we decided to investigate our Number One Project—the north face of Pigeon Spire. Other climbers had all told us that most of the Bugaboos, especially Bugaboo, Pigeon and Snowpatch, are peaks offering only one summit route; but a careful study of photographs had convinced us that our plan had some merit.

The Pigeon-Snowpatch col was gained only after some difficult and treacherous ice climbing, the many tilted séracs forcing us to follow a very tortuous route. I recall chopping steps up and down several crazily tilted ridges, and clambering once up a wall of rotten, grainy ice. In the slanting sunshine we plodded to the foot of the bergschrund below the great north couloir. The nearer we came to our proposed ascent, the more skeptical we grew of success. But we realized that mere conjecture would lead us nowhere; and, remembering that difficulties can not always be properly estimated from below, we prepared for what would obviously be a struggle. To save weight, yet maximize efficiency, we decided to take two axes, two pairs of crêpe-soled shoes and one pair of nailed boots. I would use only Bramani boots.

Kicking and cutting steps up the 50-degree ice slope, after crawling across a very rotten bergschrund fill, I climbed to a rock snag at the rope's end for an anchor, to spare the use of an ice piton. On the next lead I chopped a few steps on steep, grainy ice, and worked 40 feet up a glazed chimney, finding a tiny belay platform to my left. Above, the couloir showed its mettle: grey, vertically soaring walls capped by an icicle-adorned overhang. Hieb, on the ensuing lead, donned sneakers to traverse a rib, after an unsuccessful

excursion to the left. A crack led down to the couloir center again, allowing us neatly to by-pass a forbidding overhang.

In pessimistic moods, we belayed Hieb as he struck out again. He slowly inched his way up a narrow jam-crack in a truly vertical wall, once hanging onto practically nothing while he placed a piton. As he worked his way upward with difficulty, we quietly wondered how good the piton would be in an emergency. He varied the pattern by clambering up a smooth face to the left and, when out of holds, climbed a 15-foot overhang with the aid of two pitons for tension. The last 30 feet took him to a slanted, snowy ledge, during which the still acute difficulties were more fully counteracted by safety pitons. Taking a tension belay to save energy and time, Widrig moved to the poor belay spot, taking over the lead. Pitons pounded with a high ring mitigated our worries as he zigzagged up a series of high-angle slabs well thatched with loose snow. Trying several possibilities that looked weird from below, Widrig gave up the dry right side of the couloir when piton cracks gave out. With a semi-tension belay from a piton, he then traversed left to an awkward corner and somehow found a high clutch hold that enabled him to squirm breathlessly onto a minute ledge beneath the iced, dripping overhang mentioned before. Almost 200 feet vertically below, I ducked to avoid hissing ice and rock particles as he began removing verglas on the overhang, for my position was exposed to falling missiles.

His efforts on the black overhang looked absolutely fantastic, but after an exchange of shouts he assured me that it was the last possibility. This was followed by considerable cursing, which I surmised resulted from a continuous spray of water and the generally miserable position he was in. The depths of the gully kept us in the shadow, and a brisk wind abetted the chill. Widrig worked up to a point where he placed an angle piton, inserted a sling, and repeated the process. Dangling high over the void, he worked some time with the hammer to remove loose snow and ice on the wall above. Finally he uncovered a side-cling hold for his left hand, after almost giving up because of the absence of either holds or cracks. Pulling himself to an awkardly balanced position, he quickly pounded a piton, carried between his teeth, and, leaning far to the right, made a tension traverse around a glazed, bulging overhang to reach a belay ledge with one foot of the 120-foot nylon to spare.

Hieb and I, in turn, moved up, using tension from above.

Removing the iron helped my circulation to revive. Hieb took the relief shift, beginning his efforts by chinning up an overhang. He struggled up a series of grooved, barely possible cracks, placing a few pitons for protection. The dangling rope proved his lead was as vertical as the others. Finally he came to the big ice patch in mid-face. When I came to the wet overhang to remove the pitons, after being thoroughly doused, I found that the task of retrieving the iron and hoisting myself up the glazed walls with upper tension proved more difficult than I had anticipated. Hieb's last lead, I thought, was about the extreme of fifth-class climbing. Every pitch required not only delicate balance, but extreme muscular effort.

A glance at the lengthening shadow of Pigeon to the east reminded us that we could afford to lose no time. I hacked steps a rope length up the glare ice, wondering if the added weight of crampons would not have been justifiable. I placed a piton at the edge of the ice, belaying as Hieb tried to save time by a near-by friction slab. But the angle became too critical, so I had to resort to slower step-cutting again. At times a thin layer of superficial snow allowed a little scrambling on the steep ice between steps. I cut across the gully to a rock ledge, belayed Widrig up and, after trying another useless rock exit, worked along the edge of the ice 60 feet on treacherous ground before I managed to navigate a series of tiny ledges to a paralleling rock rib.

For the first time on the ascent we could move simultaneously, but only for 100 feet. A scrutiny of the walls above showed only one route that offered hope of completion before sundown. To our right rose a 140-foot slab, far too steep for friction, but cleft by a deep two-foot crack. Belayed through a piton, Hieb began its ascent by using layback technique, later stemming by muscular contraction and expansion. A tiny ledge once offered a resting point from which he could place a piton. The slab ended in a narrow crest, where Widrig gave Hieb a shoulder to struggle over a tilted slab above the chimney—a trick that called for perfect coordination.

Joyous yells announced that it was a "sure thing" now, for the remaining route to the summit was in full view. The entire angle of the peak here greatly decreased. I spent most of two leads cutting steps on glare ice, usually only for the alternate foot, to save time, and avoiding traverses because Hieb still wore sneakers, Widrig having changed shoes for the fourth time. Beyond the ice, we literally raced up the broken rock to the summit, following the

regular route for the last 100 feet. We deemed a short rest next on the program, for we had climbed continually hard and fast on the 1500-foot face since leaving the bergschrund seven and a half hours before.

Evening shadows deepened the tones of the valleys. A reddish alpine glow illumined the sky beyond Howser and its terrific south tower. We looked with interest at the west walls of Snowpatch and Bugaboo. Behind the Bobbie Burns Group, we spied Sir Donald, and in other directions we saw the Goodsirs, Ethelbert and the line of high Purcell summits to the south. Though prejudiced, perhaps, by their nearness, I felt that the Bugaboos were the most spectacular peaks I had seen in Canada outside of the Coast Range. Our reveries had to be brief, however, as time was running short. We hurried down the regular route to the Warren névé and loped to our cache, with Hieb not even complaining of cold feet in his sneakers. In the dusk we took the longer but easier way to camp via the Bugaboo-Snowpatch col.

In the morning we headed for Snowpatch Spire; but, when we were a little above the last notch, we saw that the red sunrise had been a true warning, and we came back to camp, having no desire to risk a storm high on the peak. On the 20th the clouds had vanished. Spending considerable time "de-ironing" the route, we made the ascent in five and half hours from the notch, each of us leading a third of the climb. Except for wet rock on the two trickiest pitches, conditions were ideal, and the warm sun lured us into taking a lengthy summit siesta.

We moved camp to nearly the top of Crescent, climbing all six of its spires. Joe and Ralph, in fact, scaled a short but difficult southeast tower that had been previously untouched—the seventh east of the western and highest point. The north face of Bugaboo also came under consideration. After I returned from a reconnaissance to the 8500-foot sill, we decided that any climb of that face, if at all possible, would be too lengthy for our remaining stay, so we had to be content with Kain's original way. The final day found us getting Marmolata between rain squalls, and returning to the road in an evening downpour. As we dried out beside a roaring fire, we agreed that the Bugaboos were worthy of a future visit because of the fine scenery and excellent rock, and hoped that in the hazy interim the now famous "road" would be improved.

First Ascent of the Nisqually Icefall

DEE MOLENAAR

AT NOON on 15 July 1948, Bob Craig and I stood on a small rockpile at 13,000 feet on Mount Rainier. We had spent the previous ten hours in the most intensive and exhausting ice work either of us had ever undertaken. Below, our crampon tracks could be seen emerging from the jumbled breakup of the Nisqually Glacier Icefall. Above, the summit snow fields rolled gently to the crater rim and the 14,408-foot summit. Thus was pioneered a new route to the summit dome from the peak's heavily glaciered southwest flank.[1]

Many climbers, gazing at the mountain's most steeply cascading glacier, have wondered whether it would be possible to climb this untrodden portion of the Nisqually Glacier. It was not until this summer that Bob and I, on a "postman's holiday" from our duties as Temporary Rangers in the National Park, found the time and opportunity to gain intimate acquaintance with this tremendous icefall. Although the climb occurred without mishap, our survey of the glacier at this point resulted in strong recommendation against its use as a future climbing route to the summit.

Previous reconnaissance trips along the snow fields bordering the lower Nisqually Glacier had given us some idea of the conditions of the icefall. We had observed that most of the avalanches occurred in a steep chute between the eastern (right) edge of the icefall and the rocks of the Nisqually Cleaver, the steep rock ridge separating the icefall from the ice cliff of the glacier. Also, a wide debris track was lying at the basal, central portion of the icefall. This slope, at an angle of about 40 degrees, extended into the breakups and séracs above and was of an over-all length of about 500 feet. Since this slope appeared to be the only reasonably expeditious way by which the upper icefall could be reached from the "flat" glacier below, we planned our strategy with the initial attack to begin here. High

[1] This was the first ascent by the route here described. The ascent by Joseph T. Hazard and the Fuhrer brothers in 1920 was made not up the Icefall but via the snow fingers on Wapowety Cleaver.

NORTH FACE OF PIGEON SPIRE
Photo, R. Widrig

NISQUALLY ICEFALL ROUTE ON MOUNT RAINIER
Photo, Saralee Molenaar

Descent
Ascent

above, the greater breakups, although an apparent chaos of ice blocks and irregular crevasses, gave encouragement only by virtue of our belief that many of the crevasses would be bridged and filled with fallen debris. We were of the opinion that the real route-finding problem might present itself above the icefall proper, where crevasse lips and edges would be steep, clean-cut and unbridged, running possibly the entire width of the glacier. With these thoughts in mind, Bob and I climbed to 10,000-foot Camp Muir in the evening of July 14th, prepared to catch a few winks before an early morning sally onto the ice slopes above.

By the time dawn had lightened the sky the next morning, we were at the lower end of the long debris slopes, now solidly frozen in the frigid morning air. Our route from high camp had traversed the heavily crevassed Nisqually cirque, and we had needed flashlights to locate the path between the larger holes. Once on the slope, we found that it steepened to such a degree that another man on our 120-foot nylon rope would have presented a problem: our leads from each suitable belay point required the full rope length. With feelings of genuine relief, we emerged into a niche at the upper end of this slope. The last 50 feet were climbed only by the use of laboriously cut steps.

The sun was hitting the eastern edges of the ice blocks high above as we resumed the ascent after a few minutes' rest to remove a couple of layers of clothing; the steep climbing had warmed us, despite the chill of the morning. Above us now rose a series of leaning séracs and fallen blocks of all sizes and shapes, interspersed by crevasses of invisible depth. Since an ice ridge running to the right suggested a possible route, Bob took the lead and, chopping several steps along an ice slab, scrambled to the ridge top and belayed me to him. With a few more feet of rope, he advanced for further study of the ridge. Bob's first words told me that our route would have to follow the ridge to a drop-off ahead. Here Bob established himself firmly behind an ice block, while I passed carefully and proceeded down to the drop-off. A broken-edged crevasse cut us off from the mass of fallen ice blocks on the opposite side. However, a small sérac leaned slightly toward our ridge, although about eight feet down and out from the nearest jumping position. It was the only way across; so, with a little slack in the rope, I jumped across to the sérac, down which I scrambled to more stable ice. From here I

LEFT: CRAIG IN AXE-RELAY ON ICE RIDGE AT 12,000 FEET

RIGHT: CRAIG CLIMBS AROUND SÉRAC AT 12,500 FEET

Photos, D. Molenaar

worked between and over several small ice blocks until another crevasse brought me to a halt. Here I brought Bob up with a hip belay from behind an ice hummock.

The next problem came in the form of a narrow, jumble-topped, downward-sloping ice bridge covered by a layer of new snow. Midway, the bridge thinned to a foot in thickness. Far below, the blue, icy depths might have had artistic appeal under other circumstances. After glancing appreciatively at Bob's firm belay behind me, I let my weight slowly down and straddled the bridge cautiously before gaining a position for a long leap-step to the opposite edge. It held, and I moved quickly along a steeply banked ledge to a safe position from which to belay Bob over. We were now standing "with our backs to the wall" on one side and with a downward-sloping crevasse lip on the other side. Farther along, however, a narrow chute ran upward and around a higher corner of ice. Here Bob took the lead. After cutting several down-pressure handholds and footsteps, he used his rangy 6 feet 3 inches to good advantage in negotiating the first nearly vertical pitch of the chute. A few minutes later we had both climbed into a level saddle above.

We surveyed the situation. A narrow shelf on the opposite side of a steep ice slope appeared to be the next roosting point. Beyond, our vision was blocked by a mass of delicate icicles glistening against the sunlight. With Bob belaying from a pocket in the ice, I began the crampon traverse across this 55-degree slope. Occasional 35-degree "platforms" offered resting points until the opposite side was reached. Here I took a look over. I was now standing on the edge of the deeply scoured, steeply sloping ice chute which we had determined to avoid at all costs. It was about 200 feet across and inclined from an ice cliff high above to a sweeping bend far below. Above the opposite side could be seen the dark-banded, roughly projecting rocks of the Nisqually Cleaver. Along the upper left edge of the chute, a narrow crevasse gave some semblance of a ledge route which could be used to work to the left of the ice cliff above. After a contemplative pause I anchored myself and took in the rope. Bob joined me with a questioning grin on his face.

We were now at an elevation of about 11,500 feet and above the broken, jumbled mass of the icefall proper. It had taken us about five hours to reach this point, 1500 feet above the base of the icefall. But we were still in the "cataracts" and not sure of finding a

through route. Until now we had been keeping to the center of the glacier, halfway between the two rock cleavers. Now we were confronted with the possibility that we should have to work out of the icefall by crossing the big chute with the aid of piton belays. We had not planned on being "forced" into this direction and toward the downward-sloping, crumbling rocks of the Nisqually Cleaver. Now we were wondering.

With hopes that a way might be found above, Bob took the lead along the crevasse ledge. This shelf proved to be narrower than when it was first studied, with a tendency to slope downward into the chute. At one point an ice "chockstone" blocked progress until more steps were cut. I could see Bob's back disappearing behind this block, then the rope sliding over, first taut, then slack; then I could hear the mutterings of a man cutting steps from an awkward position. It was only after the full 100 feet of rope separating us had been paid out that Bob's murmurs suddenly changed to an exultant cry: "Ah . . . a highway ahead!" After I had climbed along the ledge and given Bob more rope, he whooped that a broad snow bridge crossing a higher crevasse again opened the route in the direction of higher ice. I joined Bob on a broad saddle. We took off our packs and sat down to rest.

It was now 8.30 A.M., and the sun was shining brightly from a cloudless sky. The exertions of the morning had given us a thirst which was soon satisfied with a can of orange juice. I took out our 20-power telescope and, balancing it on the head of my axe, focused it on the telescope platform at the Paradise Inn, three miles away in a direct line. A small cluster of moving objects on the platform told us that people were following our progress through the 33-power telescope below. To accentuate our elation at finding a route through the icefall, we formed a chorus line and danced a jig—until we got out of time and began ripping into each other's trousers with crampon points.

Suddenly a dull crack sounded in the ice blocks below, followed by a sliding crash of ice against ice, then by a roar as cascading blocks slithered downward in the ice chute. The sun's rays were already beginning to melt the smaller ties holding together massive ice blocks—mute argument for an early start when one is attempting an ascent through a maze of frozen séracs.

A small but revitalizing breakfast of raisins and a sandwich

each prepared us for further advance. Our route from here traversed a gentle slope to the "highway" bridge, then steeply upward to a knife-edged crevasse lip. Bob straddled the ridge *à cheval* with an ice-axe belay, while I inched along carefully for a rope length. Since a transverse crevasse immediately preceded another higher knife-edge continuation of our ridge, Bob took another belay position here while I cut steps upward and onto a broader surface. From this point we gained elevation rapidly and were soon relaxed to the extent of taking a few Kodachromes of the rapidly changing scenery of open névé slopes and solitary séracs poised near by. At 12,500 feet we worked to the left side of the glacier and through another jumble of ice blocks below the bergschrund which bordered the rocks of Wapowety Cleaver. Another knife-edge ridge offered the last step-chopping problem before we arrived, weary and extremely dry-mouthed, on the rocks of the Cleaver just below the 13,000-foot saddle over which the Kautz route climbs. The Nisqually Icefall had been climbed.

It was now noon. The hard work of the morning had somewhat dimmed our ambitions to go higher, since we were now on the regular summit route. But a few raisins mixed with snow lent us the added doggedness to push on slowly to the crater rim and summit register box, which we gained at 2.00 P.M. A hot sun shone brightly as we lay stretched in the crater for an hour before proceeding downward.

Our descent was made via the Fuhrer Finger, one of the seldom climbed couloirs on the mountain. We were thus one of the few parties to enjoy one of the finest glissades on Rainier. In ten minutes we lost 2000 feet of elevation and were appreciative of this accelerated finale to an extremely long day. We arrived at the Paradise Ranger Station at 7.00 P.M., quite fatigued but completely satisfied with the finest of ice adventures.

[The author gives additional information on the Nisqually route in a letter: "Today, September 12th, 1948, I took my customary morning look at The Mountain and the icefall. To my amazement, a dazzling area of white, newly exposed ice glared back at me from the right of the icefall. Some time within the past 24 hours (the mountain was covered by clouds yesterday afternoon), a large avalanche had taken a clean path for about 1500 feet to 2000 feet,

beginning at the ice cliff at the head of the chute and extending to the middle of the glacier, taking with it countless blocks of ice and covering the crevasses smoothly. A wide fan of clean snow and ice debris now extends a thousand feet onto the flat glacier below the icefall. The right half of the icefall now looks as if a gigantic shovel had taken a clean scoop downward."—*Ed.*]

Gothics East Peak and Sundry Other Matters

Andrew John Kauffman, 2nd

TWICE in my climbing career it has been my good fortune to join forces with the same two pleasant companions. It was on the 1946 St. Elias Expedition that my admiration for Bill Putnam and Ben Ferris received its conclusive confirmation; and it was there, too, that I was privileged to witness the establishment of that renowned firm, Colossal Enterprises, Inc.

Those few poorly informed persons to whom the term Colossal Enterprises is meaningless should carefully scrutinize the lines below in penance for their shameful ignorance. Colossal Enterprises is a construction company, famed for its engineering and architectural feats, such as the building of bridges, snow houses, stone monuments and peculiar cairns. The management consists of President Bill Putnam and General Manager Ben Ferris, who comprise the directorate and have a permanent controlling interest in the corporation's affairs. Part ownership in the company (but under no circumstances more than 5%) may be obtained by purchasing the common stock, available at this time only at the Main Office. On payment of one hundred dollars ($100.00), the President will hand you an engraved certificate, bearing the great seal of the Corporation and representing one (1) share of common stock. This certificate may be redeemed at the option of the General Manager or the President for the sum of one cent ($ .01) upon surrender of the certificate, properly endorsed. Or it may be disposed of on the open market, at the owner's risk. Current quotations read "Nothing Bid, Nothing Asked."

It was with the management of this company, and with the corporation's mascot, Skagway (a well-known mountaineer who once almost slipped into membership in the American Alpine Club), that I set out on 5 July 1948 from Swan Creek on the banks of the Columbia River on a long-projected undertaking. Plans called for a complete crossing of the Northern Selkirks, from the Adamant Range to Flat Creek on the Canadian Pacific Railroad—a distance, as the eagle flies, of roughly 70 miles. This country, rarely visited,

consists of high ranges, deep valleys and almost impenetrable forest. A second party, under Sterling Hendricks, was to set out simultaneously from Flat Creek and move in the opposite direction, somewhat in co-ordination with our group.

The route we expected to follow had never previously been crossed in its entirety.[1] In addition to our wanderings, we planned to ascend as many peaks as convenient along the way. We had only three weeks at our disposal—not much time if we were to accomplish all we set out to do. Fortunately, arrangements had been made to have a plane drop supplies on a convenient snow field in the Adamant Range.

Limitations of space prevent me from giving a detailed account of our feats; but perhaps this is all for the best, since such an account would tend to become tedious. In brief, three weeks later, right on schedule, after crossing eleven high passes and cols, and with six to ten first ascents to our credit (the figures vary according to the individual, the audience and the amount of alcohol consumed), we emerged victorious at Flat Creek. Our trail—for indeed Colossal Enterprises had virtually transformed everything along the way into a graded trail—was marked with countless stone monuments, some of them 15 feet high, as well as the entrails and blood of voracious wild animals, whose attacks had been repelled by the prompt and courageous action of the General Manager. We still looked strong and well-fed, for on our way we had consumed vast quantities of food, including a supply of bottled beer and rum successfully *free-dropped* from the plane.

Familiar Colossal Enterprise tactics were employed throughout the expedition, best exemplified by a long-legged, infuriated pace, with hourly pauses for the construction of stone idols. To discuss in detail my struggles to keep abreast of my more energetic companions would be superfluous as well as humiliating. That they

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[1] See the note on page 227, below. A note from Dr. J. Monroe Thorington summarizes the general route as follows: from the mouth of Swan Creek to its source; thence through Thor Pass and across a pass in Azimuth Mountain; thence across Silvertip névé through Palisade Pass to Sir Sandford Glacier; thence across Sir Sandford Glacier S. to Moberly Pass; thence via Centurion Glacier and part of Argentine Glacier to a high pass at the head of Gold Stream and one part of Bachelor Creek; thence across unnamed glacier and glaciated col to the Bachelor-Downie Pass; thence along flanks of Sorcerer Mountain to Tangier summit; thence to Farm Creek, up Farm Creek to Bostock summit, and finally down Bostock Valley to Flat Creek.—*Ed.*

condescended to tolerate my clumsiness, and even to hurry to my rescue on countless embarrassing occasions, is a tribute to their spirit of cooperation; that they maintained their good humor in the face of my grumbles and general incompetence bears testimony to their good sportsmanship. While I may deserve a certain amount of credit for drawing up the general plans of the expedition, the directors of Colossal Enterprises deserve virtually all praise in the execution.

One day in particular marked the climax of our trip. July 16th has been our lucky mountaineering day. On this date two years before, we stood on the summit of Mount St. Elias; and one year ago, with other companions, I had reached the top of Mount Butters in the Battle Range. Perhaps it is more than coincidence that this success should come to us on the feast day of St. Elias, the mountain-saint whose special mountain we had scaled two years previously.

Under a cloudless sky we set out at 6.30 A.M. on July 16th from our campsite in the lovely heather meadow on the south edge of the Granite Glacier at 6000 feet altitude. Our plan was to make a second ascent of Pioneer Peak (10,660 ft.) and to attempt a first ascent of its precipitous neighbor, the east peak of the Gothics (10,550 ft.). Both of these peaks belong to the sharp, igneous outcropping which makes up the Adamant Range. The mountains here have the needle-like yet heavily glaciated characteristics of the Chamonix Alps. For instance, the east peak of the Gothics, undoubtedly one of the more formidable summits, has been described by Howard Palmer in the following terms:

"The easterly peak of The Gothics near us presented a most forbidding aspect, for it was nothing but a thin wall and, seen end-on, looked like a steeple . . . We had never seen such a summit on a mountain of equal importance anywhere in the Rockies or Selkirks before. It reminded us strongly of views of the Grépon."[2]

Since there was some thought in my mind that this peak might prove itself beyond our collective powers, I was relieved when Putnam, masterfully plotting a route through the huge crevasses, began to lead the way in the direction of Pioneer Peak, temporarily by-passing the east peak. From the Pioneer-Gothics col, where we

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[2] Howard Palmer, *Mountaineering and Exploration in the Selkirks* (New York: G. P. Putnam's Sons, 1914), p. 215.

emerged a few moments later, the east peak cut like a dagger into the morning air, remote and terrifying. A steep rib of snow—or ice—led to the rocks, which, as far as I could see, were unclimbable. I cast my ballot in favor of Pioneer Peak, and was heartily seconded by Ferris and by Skagway's bark of assent.

Just three hours later (for the col is only some five or six hundred feet from the top), Putnam removed an aluminum cylinder from Palmer's cairn on the summit of Pioneer Peek. It was with thrill and curiosity that we stared at the signature of Holway, Butters and Palmer, inscribed at this very spot more than 35 years ago. In the intervening years this crest had remained inviolate.

Though Skagway and I strongly dissented, Putnam's enthusiasm for the east peak kept increasing in proportion with his growing realization of its difficulty. As for Ferris, he seemed willing to try anything once. Since Putnam's vote, under the charter of Colossal Enterprises, heavily outweighed the combined voices of the dog and myself, it was decided, not without voiced and growled opposition, to attempt the east peak.

We retraced our steps to the Gothics-Pioneer col, where Putnam exhibited his sense of the macabre by rolling huge boulders down the black 2000-foot abyss on the south, much to my discomfort. Then, after a few moments' pause, we started up the steep slopes, Putnam in the lead.

Fortunately, the ice was covered by a thick layer of snow, so we were able to kick steps to the base of the rocks some 200 feet above. Here we left our few extra belongings and tied the dog to a boulder. That lucky animal was not to endure our trials!

We proceeded next for a brief distance over easy rocks along a sharp knife-edge, which fell vertically on either side. We were now climbing one at a time, Putnam leading the way with a stout belay from Ferris. Reluctantly and ignominiously, I brought up the rear.

We had gone barely 100 feet when Putnam came to a halt beneath a vertical gendarme which refused to yield to persistent frontal attack. Half-heartedly, and without much enthusiasm, I volunteered to attempt to circumvent this obstacle by crossing below on tiny exposed ledges which overhung the 2500-foot south wall. This process, I reasoned, might take me to an evil-looking recess which vanished out of sight behind the gendarme. It was

my hope, rather than my conviction, that this recess would lead fairly easily back to the ridge above.

Hardly had I made the suggestion when Putnam rejected it as impractical and naive. Instead, he insisted on leading the way around the slightly less exposed but perhaps more difficult north side. Here a tongue of 70-degree ice adhered precariously to the near-vertical cliff, and led towards something which, from below, had appeared to be a small crack in the smooth granite face.

As I watched, Putnam worked his way carefully over frost-loosened stones to the base of the ice, armed with axe, pitons, hammer and karabiners. Slowly he chopped his way up the 15-foot ribbon of ice, exercising extreme care in order not to shatter the thin veneer which provided the only footing. At last he reached the base of the rock.

Additional struggles, plus the solid hammering of two pitons, brought him into a small sentry-box, where Ben joined him a few moments later, while I worked my way to a solid position at the edge of the ice. Then Putnam accomplished the outstanding feat of the day. A narrow, 30-foot vertical chimney, broken by a cumbersome chockstone, still blocked the way to the ridge. Gradually and with manifest effort, our leader wormed his way upward. Several times he paused to rest. Ice and water in the chimney numbed his fingers. Anxiously we watched him as he negotiated the last few treacherous feet above the chockstone. Finally a shout of triumph heralded his discovery of a secure belay-point. Ben followed quickly; and, in my clumsy manner, I scrambled up third.

Putnam continued ahead, along the knife-edge ridge, towards the summit. A final short tricky pitch, overhanging the south cliffs, delayed him for a moment. Seconds later we three sat atop the east peak of the Gothics.

We scratched our initials into the lichen-covered granite, constructed a suitable monument, and then started down. Our descent was uneventful: Putnam belayed Ferris and me down the difficult crack and ice slope, then rappelled off the face of the gendarme to join us. A few feet beyond, Skagway's tail-wag welcomed us back to somewhat less than vertical terrain.

I might also recount our ascent of Mount Wotan, in the course of which Skagway engaged in a spectacular feat of daring. Or I might tell of the Quadrant climb, where I was supposed to star, but

did not. Or I might mention the General Manager's fine work on Mount Argentine, near Bachelor Col, which we believed to be unclimbed, but on whose summit an unmistakably large cairn ridiculed our efforts. Or I might recall Mount Colossal and the ascent of the Houdini Needles, or our long pilgrimage to Flat Creek. But I shall let these adventures go by the board and keep them in mental reserve for the future.[3]

The east peak of the Gothics remains, in my mind, our crowning climb of the season. Indeed I think I can say that the climb was perhaps the finest mountaineering achievement in which I have had the privilege to participate. I have warm memories of two splendid companions, and of their courage and resourcefulness.

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[3] Evidently the author's reticences, in this paragraph, are as colossal as the corporation's enterprises. Dr. J. Monroe Thorington lists the following first ascents to the expedition's credit: Colossal (first peak N.W. of Unicorn), Quadrant (N.W. edge of The Gothics), Wotan, Damon and Pythias (N.W. end of Gothics névé), E. peak of The Gothics. He mentions also the expedition's second ascents of Pioneer Peak and Sentinel, and its climbs on Argentine and Azimuth.—*Ed.*

Children of the Homathko

W. V. Graham Matthews

THE work of the Harvard Mountaineering Club's 1947 expedition to the Coast Range of British Columbia, extensive though it was, still left enough to challenge the most ambitious mountaineer: Stiletto, the four highest peaks of Serra, and half a dozen peaks above and beyond the Parallel Glacier were unclimbed, while mighty Mount Remote lay in a region as yet untrod by man. To these lures W. V. Graham Matthews and Harry C. King, their imaginations still fired by their experiences on the 1947 expedition, easily succumbed; and they proceeded to organize a new expedition. Convincing arguments and "hairy" pictures persuaded George I. Bell and James C. Maxwell, both of the H.M.C., and William C. Fix, President of the Yale Mountaineering Club, to join the party.

The five-man expedition, after a week end in Vancouver of hectic purchasing and repacking of food for the plane drop, arrived on 14 July 1948 at Tatla Lake to meet Dave Wilson and Alf Bracewell with the pack train of six pack horses and two riding horses. Dave, undaunted by the flood conditions which had sent the Columbia and Fraser Rivers on their rampages, was cautious but optimistic: he thought that with luck we should be able to get to Scimitar Creek in time to meet the plane drop, which was scheduled for July 22nd. The first part of the trip down the Homathko Valley was pleasant enough; with a good trail and sunny skies, we paused long enough to renew friendships with the Butlers, Hamms and Nicholsons. By the time we had reached "Pat" Braid's, however, we had encountered enough high water to get an unpleasant sample of what lay ahead. Pat was frankly dubious, saying that he had been isolated completely only a short time before and that the high water was the worst he had ever seen. Nevertheless, we hastened on. From now on, until the very end of the summer, we were in a never-ending struggle with the Homathko and its tributaries.

Going through the "meadows" below Pat's cabin in waist-deep water was miserable; but the fording of the Homathko at the head of Twist Lake was accomplished without difficulty through chest-

deep but rather calm water. We pitched camp in a meadow shortly afterwards. Next day brought the usual trouble crossing the rock-slide, and just below it a harrowing incident occurred: a pack horse, at a place where it was necessary to go into the raging waters of the main Homathko, got its halter rope tangled around its feet. The horse went under, and undoubtedly would have drowned, had not Dave, moving like lightning, whipped out a knife and dived in to cut the rope and free the gasping creature. By evening we reached our "wet camp" of last year, a few miles above Crazy Creek. Dave, Maxwell and I went on a reconnaissance of the trail ahead. It was certainly discouraging: with water up to our necks in the usually knee-deep swamps, Dave was convinced that the crossing of the Homathko below Crazy Creek could not be made by the horses. Reluctantly, he announced that the pack train could go no farther.

The only possible solution seemed to be to send Dave and Alf back to Tatla Lake as quickly as possible to wire Queen Charlotte Airlines to postpone the drop until July 25th, while the expedition back-packed in to our Scimitar Creek base camp. With some 700 pounds of food and equipment to be packed, it was not a happy prospect. On July 19th we parted. Later we learned that on the way out Dave lost a horse when it was swept across the river by the current. We were having troubles of our own: chest-deep water in the swamps, fast water in Crazy Creek, and jungle-like underbrush made for tough, slow work relaying loads along the right bank of the Homathko. The children of the Homathko persevered, however, and four days later were at base camp.

The next day the party divided. George Bell and I left for the Bell Glacier to get the drop there, while the others remained at base camp until it was necessary to climb to the Upper Tellot Glacier to receive the other drop. Bell and I reached our campsite in Pocket Valley at 8.00 P.M. The next day, still tired from the long siege of back-packing, we rested, planning to leave at midnight to reach the Bell Glacier in time for the drop which was now scheduled for 5.00 P.M. on July 25th. By midnight, however, the weather was poor, and we decided to wait. A three-day rainy spell justified our decision; while we huddled in a leaky bough shelter or slept in our mountain tent, the surrounding peaks grew white with fresh snow. By midmorning of the 27th, with the storm over, we hiked up the

Lower Parallel Glacier, skirted the icefall on the left, and toiled on up the Upper Parallel. After an unpleasant encounter with a crevasse, into which Bell fell, having relied on a step I kicked, we found a fine campsite at about 9600 feet on a small ledge on a ridge northeast of the glacier. Because of its superb view of the snow summit of Mount Waddington, the Tiedemann Group, Threshold and Geddes, we called the site Camp Inspiration. For a high camp it was ideal—dry, sheltered from the westerly winds and with constant running water obtainable by a short delicate traverse. On the way up we saw the effects of the "high Chinook," which we had been told had removed much of the high snow in May: the route around the Parallel icefall was much worse than the year before; the Upper Parallel had noticeably less snow on it; Threshold, which last year was approachable by a steep but negotiable snow slope, looked virtually unclimbable—the snow had been replaced by a dangerous mass of loose and moving rocks.

July 28th was an anxious day; it dawned clear with a beautiful sunrise. Under the arrangement with Q.C.A. to have the drop on the second good day after a storm, this was the big day. The col to the south of Geddes, guarded by a difficult bergschrund above which small avalanches of fresh snow had left tracks, looked uninviting. Instead, the col to the north and east looked more feasible, and in any event (according to Don Munday's map) it should take us closer to the designated drop area on the Bell Glacier. We trudged across the Upper Parallel to the lowest and easiest point in the col; it offered more difficulties than anticipated, but Bell skillfully picked a route up a vertical face of good rock. Once on the Geddes Glacier, we hiked across it in search of the Bell Glacier. Blocked by icefalls, we found a route to the northwest and then, cutting back westward, gained an easy ridge overlooking the Bell Glacier. Here an unhappy sight presented itself: the Bell Glacier was much lower and much shorter than we had expected; our proposed drop area was a mass of moraine. Dismayed by this unfortunate situation, we hastened back to Inspiration to move our camp. On the way we paused and stamped out a drop area in the snow with a brief message for Q.C.A.—DROP HERE—hoping that the pilot might see it.

Hauling the packs up to the col went more quickly than we had anticipated, but still we were just beyond our drop area when we heard the plane. We unroped. Bell ran to the ridge to watch the

Bell Glacier; I waved frantically at the plane. At precisely the wrong moment clouds blocked the plane from view, and we heard rather than saw it make a run high over the Bell. The pilot had almost certainly not seen us, and it was very doubtful if he had dropped on the Bell. Our minds a welter of doubts, fears and speculations, we pitched camp below the ridge, dubbing it, appropriately enough, Camp Expiration.

The next morning Bell described what might be bundles on the Upper Bell. A long day's hike over tedious scree and through aggravating scrub dispelled this notion; and we started the long trek back to base camp, taking some comfort in the hope that the pilot might have dropped all the load on the Tellot. The next evening, as we were tramping through the lower part of Pocket Valley, we spied Fix, King and Maxwell across the creek. Separated by the roaring torrent, we exchanged the saddest stories ever told. Fix and Maxwell had climbed to the Tellot drop area and seen the plane make several passes below the area and then disappear over toward Mount Geddes. The only conclusion seemed to be that the pilot had been unable to locate them. Later we learned that he had located the area quite easily, but strong down drafts made him lose 1000 feet when he tried a pass, and he found it impossible to drop the supplies.

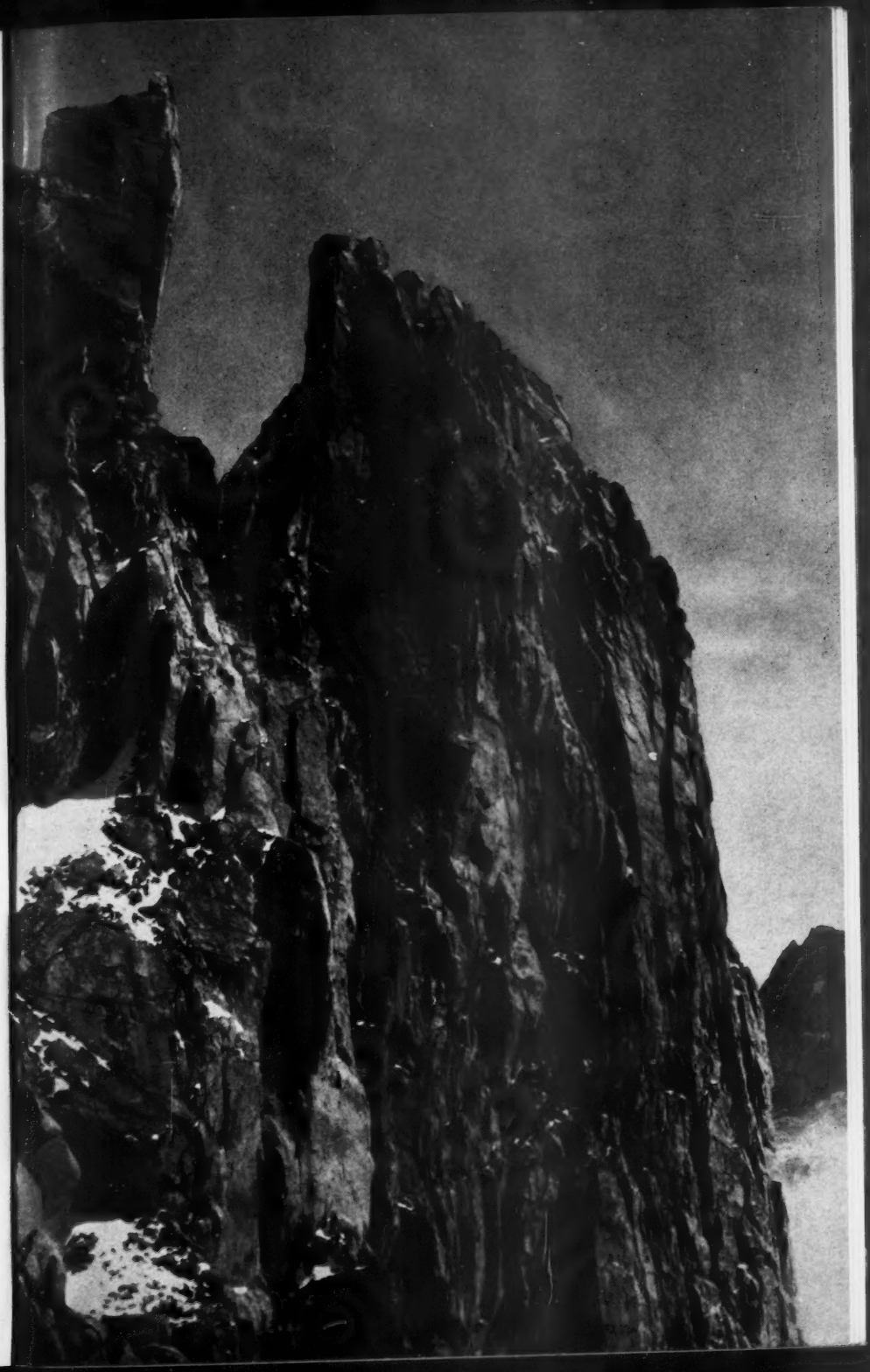
With heavy hearts we joined forces on the Scimitar Glacier and packed back to base camp. Would the plane return? It seemed unlikely; and, with food supplies dwindling, the only course seemed to be to leave for Tatla Lake. For a couple of days we debated the matter and loafed. Then on August 1st I heard a plane; I rushed out onto the flat and saw it briefly come over what was apparently the right area and then disappear over a shoulder toward Geddes. It was still doubtful whether the plane had dropped anything; but, since it was our only chance, Bell and Fix started the long drag up to high camp at four the next morning. Unburdened by packs, they made fast time over the 7000-foot climb. When they returned late in the afternoon with the news that they had found all the drop, camp was a bedlam of exultation. Two cans of beer, carefully hoarded, were split among the five of us. We had lost much valuable time, but with good weather could still accomplish most of our objectives.

At 6.00 A.M. King and Maxwell left for Camp Inspiration to search the marked area on Geddes Glacier. The rest of us followed

later, arriving at Inspiration the next afternoon in badly deteriorating weather. Maxwell and King reported no signs of a drop. That night it began to snow; but the next morning, despite the snowstorm, which reduced visibility at times to little more than two rope lengths, we left to search the Bell Glacier. King, nursing an injured knee, stayed at Inspiration. Crossing the Geddes bergschrund and col was arduous, but the storm at least made the snow firm and secure. The long, long drag down to the Bell Glacier was rewarded when we found all the drop, except for two bundles, on a snow field. By now, however, it was evening, and we spent the night bivouacked in some sparse timber. Tired from the long day and sleepless night, and burdened with heavy packs, we did not reach Inspiration, where King had almost abandoned hope for us, until evening. On August 7th we packed over to Shortcut Col, having left food for base camp and the return trip there at Inspiration; we left our tents and equipment at Shortcut and went on down to the Bell camp. Here the party divided: Bell and Fix started off for Mount Remote; the rest remained to climb Ribbon, Privation and Hardship.

Bell and Fix continued on down the Bell Glacier and reached a campsite in heavy timber after dark. The next day they packed up the canyon south of Remote, which runs into the Bell Valley just below the glacier snout. Part way up this valley they were surprised to find a glacier, previously unseen, which they promptly named Hidden. They succeeded in skirting its bad icefall and crossed the glacier to the base of a long ridge which leads up to Remote from the east, then forms an elbow and goes more northerly to the summit. By nightfall they had found a good spot to camp on Disintegration Ridge. On August 9th Bell and Fix set out for the summit of Mount Remote, one of the major objectives of the expedition. Disintegration Ridge proved to be a highway for much of the way, but not far from the summit a difficult gendarme blocked the route. Here they turned east and crossed onto the glacier on the east face of Remote. A yawning bergschrund was a formidable obstacle, but even more unpleasant was trying to chop steps above the schrund: instead of snow there was ice of a rubbery consistency, and countless blows with the axe were required. Once over this bad pitch, however, they were able to regain the ridge, whence straightforward climbing took them to the summit at 1.30. From the summit (ca. 11,000 ft.) they had a wonderful view of the unexplored area around them.

STILETTO NEEDLE AND STILETTO FROM STILETTO-SERRA COL
Photo, W. V. Graham Matthews



A group of spires to the northwest and a fine, massive peak to the southwest were particularly impressive. On the return they tried the gendarme and found it less arduous than they had feared: rappels took them over the more difficult pitches. Then some wonderful glissading on a long snow finger brought them swiftly to the valley floor. After another day's packing back to the Bell Glacier camp, they rejoined the rest of us at Shortcut Col camp.

In the meantime we had been busy. After packing up food and sleeping bags to the col (ca. 8100 ft.) early in the morning, we left Shortcut Col by 10.30 to climb Ribbon Peak. A long drag over the glacier was complicated by an awkward hidden crevasse which necessitated a weary detour. The main climbing problem on Ribbon was crossing the bergschrund and gaining the long ridge which led to the summit. The snow slopes above the schrund near the peak were covered with fallen rock and looked uninviting. But farther to the northwest the schrund narrowed, appeared bridged, and was much more attractive. We crossed it successfully, had lunch on some rocks, and then climbed over loose rock to a broad ledge. We traversed this highway, at one point blocked by a steep ice slope, across which King cut steps. Continuous climbing was possible most of the way. Only twice were we forced to belay: when the ledge gave out, and when Maxwell led a delicate traverse around an overhanging flake. Thence, straightforward climbing took us to the ridge, and soon we reached the summit (ca. 10,000 ft.), which proved to be at the southwestern extremity of this long, ribbon-like arête. On the descent we traversed the ridge, finding the going easier, crossed the bergschrund at the same point, and hurried down the glacier to set up camp.

On August 9th we made another first ascent: Mount Privation. Maxwell and I left King to rest at camp and toiled up the same glacier to the base of Privation. The climbing proved much easier than we had anticipated, and it soon became apparent that the rope was a formality rather than a necessity. A traverse across a steep face brought us into a shallow gully, which easily took us to the ridge and summit (ca. 10,000 ft.). We had a good view of Mount Cornelia rising above Pocket Valley, and observed that it appeared considerably more impressive from this side. Also impressive was the view down onto the Scimitar Glacier: the ridge dropped off abruptly on this side and plunged down over a mile to the Upper

HERMIT, HARDSHIP AND PRIVATION FROM GEDDES COL

BELL IN SCIMITAR CREEK

Photos, W. V. Graham Matthews

Scimitar. Any thoughts we had ever had of climbing from that side quickly vanished.

The next day King and Maxwell set off for Mount Hardship, which they thought would offer stiff climbing, as its nearly vertical cliffs looked most formidable. Fortunately, the rock, though indeed almost vertical, offered an ample supply of good hand- and footholds. They were much surprised to find they could complete the climb without the use of hardware. On the summit (ca. 10,000 ft.) they built a large cairn, well pleased with a fine first ascent over good rock.

On the morning of August 11th we spied Bell and Fix hiking up to Shortcut Col camp. They brought the glad news of their successful first ascent of Mount Remote, and we all joined forces, packing up to the Geddes Col. Bell was eager to try the second ascent of Mount Geddes. I had had several days to study the mountain and was convinced that the southwest ridge, if one could stay on or near it, would offer easy climbing. Nevertheless it was 2.45 P.M. when Bell and I, carrying just a nylon rope and some lunch, started up the ridge at a furious pace, determined to make at least a thorough reconnaissance. Unroped, we made rapid progress on the ridge, munching our cheese and chocolate on the way. The climbing was easy but delightful; with the rocks completely dry and free from snow, handholds presented themselves whenever they were needed. For most of the lower part, we kept to the west side of the ridge, carefully circumventing several bad cliffs which threatened to block our progress. For the most part the rock was solid, though an occasional bad spot required caution. Shortly before 4.00 P.M. we reached what we hoped might be the summit; but farther to the northwest along the ridge, just emerging from some clouds, was a point definitely higher. The ridge, however, was now almost level, and we romped along, reaching the true summit at 4.10, only some 85 minutes after leaving the col. We were somewhat puzzled to find no cairn; perhaps the corniced snow on the north side of the ridge concealed one. We built a substantial cairn from big flat rocks. The descent was accomplished in slightly longer time but without difficulty, and—despite being tempted to use the rope several times for rappels—we found ways around the more difficult spots and brought it to the col still coiled. Here we gathered our packs and roped up to climb over to Inspiration for the night, the others having

preceded us to Pocket Valley with the thought of climbing Cornelia the next day.

In the night, the weather turned bad again, ruling out all climbing; and we all met at base camp on August 13th, Bell and I making a most miserable descent of the slippery Scimitar in a pouring rain. Our base camp food was low, and the need of getting to the supplies at high camp became more pressing. Still the rain continued. By the afternoon of August 16th, however, the weather broke, and in the evening we hiked up to the cache above the lower icefall of the Cataract Glacier. The next day was a long drag up the Cataract, which was becoming increasingly difficult to negotiate: the vital snow bridges were fast disappearing. A tortuous route was forced through the maze of crevasses and high camp reached by midafternoon. This year high camp was located on the shoulder of Dragonback, and the expedition had the happy distinction of spending the entire summer without camping on snow. The next day was fine, after an early morning snowstorm, but we were weary from previous efforts and spent the day consolidating camp and playing bridge, though Maxwell found ambition enough to romp solo up to the summit of Dragonback.

The morning of August 19th dawned clear, and we began our reconnaissance of Stiletto and the Serras. Bell, Fix and I went over to Stiletto Col, where we lunched; we saw that Stiletto was hopelessly unclimbable because of the fresh snow which clung to its precipitous cliffs, and we proceeded to hack our way over the ice slope to Shiverick Col. We climbed to the ridge of Serra I and were astounded to see that the snow had disappeared entirely from the glacier beyond, leaving a depressingly steep blue ice slope of some 700 feet—certainly an unattractive route to Serra II. Serra I looked close and inviting, however, and we made a good climb to its summit, finding there the cairn left by the Sierra Club party of last year. Any hopes of crossing to Serra II via this summit were dashed by snow-plastered rocks and impossible gendarmes. While we were still on the summit, snow began to fall; and, carefully using an old rappel sling and several natural rock rappel points, we descended on the now treacherous and slippery lichen-covered rocks. The results of our reconnaissance were discouraging. King and Maxwell in the meantime had climbed over the Tellot Glacier to the base of Serra III and reported a possible route over some 600 feet of steep ice up Serra III

—a route which had the disadvantage of soon becoming exposed to a 4000-foot drop to the Radiant Glacier.

Snow continued for the next two days, keeping us in our mountain tents, though a partial let-up allowed Fix and King to make a quick first ascent of Mount Termination (ca. 10,000 ft.), the most northerly of the Cataract group, and Bell and Maxwell to climb the Tellot peaks. The higher peaks, wreathed in storm clouds, were out of the question.

By noon of August 22nd the weather had cleared briefly. Fix, King and I went over to Serra III to re-examine the possibilities there. The projected route looked dubious; but more hopeful, we thought, was a route involving some 400 feet of 55-degree ice to the col between Serra II and III. Then we again climbed over to Shiverick Col, but after more careful study could still find no solution and returned to camp, impressed with the tremendous difficulty of approaching these peaks. Bell and Maxwell had gone down the Tellot and repeated the previous year's climb of Claw Peak; they had then rappelled down into the narrow notch between it and Claw II. From there they worked up the truly vertical face of Claw II, succeeding in making a fine first ascent on the latter just as dusk fell. Then they slogged back *up* to camp, not getting close enough to answer our anxious calls until 9.45 P.M. We spent the evening in discussion, finally deciding, with some reluctance, to attempt to cut steps up the 400-foot ice slope to the col between Serra II and III on the next two days—a route which would certainly entail great rigors, but which at least offered reasonable safety and the opportunity to attack both Serra II and III once the col was reached.

By morning the storm again set in, this time in full strength. The next three days were miserable. The violence of the wind was almost incredible: no fewer than twelve tent poles were broken by its fury, and we spent much of the time holding onto the tents for dear life. Maxwell was blown clean off his feet when a sudden gust caught him outside. By the afternoon of August 26th, with the snow still coming down, we had had enough and reluctantly broke camp, descending through the snow with heavy loads to the cache, where we spent a miserable wet night. The next day we went on to base camp, expecting to leave the following day. The weather was so bad, however, that we decided to wait a day or two. Scimitar Creek was raging, and our old footlog went out during the night. We

felled five trees in an attempt to put a log across the torrent, but succeeded only in getting one part way across, to some rocks in midstream. On the afternoon of August 30th, after a final offering to RUJAU AR, God of the Homathko, we made a hazardous crossing which brought some of the most anxious moments of the trip, the icy waters of the Scimitar almost claiming me as a victim. With the weather still poor, we hiked on out. The water was still high, and the children of the Homathko had plenty of waist-deep wading. Not until the afternoon of September 3rd did the weather clear. After enjoying the hospitality once more of Pat Braid, the Nicholsons, the Hamms and the Butlers, we finally reached Tatla Lake on September 4th.

A summary of the climbing shows six first ascents and the same number of seconds—a considerable achievement in view of the fact that there were only ten days in August on which we did not have some precipitation. We left the Coast Range with a feeling of accomplishment and also a determination to return some day to climb the mighty Stiletto and Serras, for which we had found renewed respect and admiration.

The Ascent of Glacier Peak

13-21 August 1905

Thomas Riggs

[A letter from the Hon. Noel J. Ogilvie, International Boundary Commissioner for Canada, makes the best preface to this account of a climb by our late Honorary Member Governor Thomas Riggs, former Governor of Alaska and for many years before his death International Boundary Commissioner for the United States. Glacier Peak is 10,436 feet high.—*Ed.*]

"My acquaintance with Tom Riggs goes back to 1905, when we were engaged on the survey of the International Boundary between British Columbia and Washington, through the mountainous country west of the Skagit River. He was in charge of a United States party and I of a Canadian; and on one occasion, when completely out of supplies, he came across my main food cache and helped himself. He kept an inventory, and a settlement was made at the end of the season; but the incident seemed to bring us together and was the beginning of a lifelong and sincere friendship.

"As years passed our lives followed different routes, but we came together once more as heads of the enterprise on which we had met as young men. In 1935 he was appointed International Boundary Commissioner for the United States; and, as I was his colleague on the Commission, we spent the last ten years of his life in close and happy association.

"Here he describes a climb to the boundary triangulation station on the summit of Glacier Peak, one of the more difficult mountains in that very rugged bit of country. The following summer I had occasion to make the same climb myself, but by a different route. Such trips, which would ordinarily entail a planned expedition, were tackled by the boundary surveyors as incidents in the day's work."

Noel J. Ogilvie

I HAD just occupied Whitworth to the northwest of Glacier, and Glacier was the only point to the west of the Skagit River to be occupied in connection with the work of the International Boundary Commission.

Raeburn, the year before, had climbed the peak and erected a signal, but then he went light, carrying merely a hatchet and a drill. I had not thought to ask him the route he took, and his only comment on the trip had been that he had slept out on the mountain for two nights and didn't want any more of it.

On August 10th, I moved my camp from Whitworth over to a ridge running into the north side of Glacier. At this time the air was too smoky for observation, so I decided to explore for an easy route up to the triangulation mark. The first day I sent Neuner —my assistant—down into the creek bottom and around up to where the stream breaks out from the mountains, while I kept on over the ridge, looking for a shorter route.

After getting to a peak on the ridge, I ran up against what I thought was an insurmountable barrier in the shape of an almost perpendicular cliff running down to the creek; but after looking around, I ran across a narrow cleft in the rocks. This I determined to explore. It was steep—awfully steep—but the footing was good, and with the help of a rope I carried, I lowered myself over several jump-offs of 20 feet or more, and in the course of an hour or two found myself just below where the stream seemed to gush from the rocks.

Another hour put me at the source, and a most wonderful scene unfolded itself before my eyes.

Nothing I have ever seen can equal it for grandeur. Here at an elevation of 8000 feet lay a lake of indigo, over a mile long, its lower end confined by a narrow ridge of rock in places not more than 20 feet wide and broken in one place only where the outflow dashed through a crevice only a few feet wide and fell almost sheer for several hundred feet.

At the upper end the huge glacier, from which the triangulation point gets its name, breaks off in the water from a perpendicular wall of 75 or more feet, covering the surface of the water with innumerable miniature icebergs, carved into most fantastic shapes; all around stood steep rocky cliffs, while back of the glacier towered the peak with its little cairn of rock on the topmost pinnacle.

From where I stood it looked feasible to make the ascent from the north up over the glacier to a hogback running toward the east, so by dint of hard work I skirted the lake and climbed up on the glacier. For a time I thought I was going to meet with success, but soon the ice became more broken, and after jumping several crevasses from three to six feet wide, I ran up against a crack which must have been at least 20 feet wide, extending from one side of the ravine to the other—and no way of getting around it.

I lay down on my stomach and tried to estimate the depth of the ice but had to give it up. Bottom was not visible, and all one could see at a great depth was a haze of blue. Like the villain in the play, I was "foiled again" with my goal in sight. So, dejectedly, I made my way back toward camp. At the mouth of the lake I met Neuner, and together we climbed back down to the main creek and then up to camp.

The next day we explored the west side, but soon gave that up as we ran up against a precipice which did not even have a roosting place on it for a bird.

I then determined to have a try from the east, so moved my camp into the creek about five miles from where I was camped.

For several days it stormed almost continuously, which laid the smoke and gave us time to move a box of provisions, the two theodolite boxes and tripod up on the ridge, a day's journey.

At last on the 19th at daybreak we pulled out—Neuner, Beall and I.

Six hours of climbing took us to the instrument boxes and the grub. Three hours more took us to the foot of another glacier on the southwest slope which looked climbable.

I led out, cutting steps in the ice for half a mile or so and then ran up against the usual crevasse and had to turn back.

The only other possible course was over a high cliff connected with the main mountain by a hogback.

I yelled back to the boys to try that route while I explored around the glacier a little more. I soon gave this up and hurried on to join them.

They had started up a cleft when I caught up with them and were in trouble at a stiff little climb over some smoother rocks. I saw what I thought was a better way over a wall of jagged rock.

For a way, the climbing was easy, hand- and footholds were

Courtesy of The Living Wilderness

GLACIER PEAK FROM THE NORTHEAST

Photo—U. S. Forest Service

Courtesy of The Living Wilderness

Photo—U. S. Forest Service

GLACIER PEAK FROM THE EAST

where they were wanted except near the top, where in one place it would be necessary for me to swing myself out over a projecting rock. I wound my fingers into the crevices of the rock and gave a heave, expecting to draw myself to the top.

Then—the rock gave way, and I was falling.

Backward I went. Strange to say, I was not frightened. I thought, "Well, I am dead. I'm sorry for my family." Then I struck on my shoulders and back of my neck. "No, I am not dead," I thought, "but I have broken every bone in my body." Another bump, this time on my chest, and a slide, mixed up with rock and debris, and I came to sitting on a ledge with my feet hanging over another drop of 50 feet or more, and filled with a feeling of mild surprise and, strange to say, unhurt, with the exception of a sprained wrist and one or two cuts on my head and shoulders.

I had evidently turned a back somersault, landed on the ledge with my shoulders, some 15 feet below, bounced around in the air, dropped to another ledge lower down and then slid down the only place where it was possible to slide and not drop for a hundred feet to where I brought up.

Altogether my tumble was about 75 feet. As soon as I could get my breath I answered the inquiries of the boys as to the state of my health and climbed up to where they were, gathering up my hat and tripod on the way.

We then climbed to the top of the knob without accident. It being then nearly five o'clock, we cached the instrument and got back to timberline where we made supper and camped for the night.

It froze hard that night, and the wind blew, and altogether we were most miserable. No blankets, very little wood and a failure.

The next morning as soon as we could see to move we were at it again, and a pretty little crew we were—sleepy, hollow-eyed and hungry, as we had only brought enough for the one day.

We climbed without incident to the instrument and found we had another cliff to go down before we could reach the hogback.

Neuner's nerve gave out, and with some profanity he told me what he thought of trying to get to the top.

"All right," I said, "go back to camp, but I am going to try once more and if I can't make it this time, I'll give it up."

I then told Beall that I would take one of the boxes and the

tripod and if he saw me wave "all right" to come on with the other box.

Here was really the hardest part of the whole trip. After getting down on to the hogback, I found that it ran up to a sharp point with only a few little cracks on the side to navigate on. In places I had to straddle the top and "coon" it, while the wind nearly toppled me over. In another place was a jump of four or five feet with a narrow ledge to light on and both sides nearly perpendicular for a thousand feet or more.

At last I got to the main mountain and waved O. K., and Beall started over and Neuner started back.

I watched Beall for 15 or 20 minutes and saw that he was wavering, so I crossed the hogback once more, took his pack and piloted him to the main mountain. From here to the top the climb was steep but not dangerous, and at half-past one we stood on the summit.

The day was a grand one. To the west lay Baker and Shuksan with the dim line of the Olympics across Puget Sound, to the south the rest of Custer Ridge, to the east Hozomeen and the Okanogan Mountains, visible to the ridge way east of the Similkameen River, and to the north the low rolling hills of the Caribou country.

My work took two hours and a half and then we started back. Beall swore he could not carry his pack across the hogback, but he did and we were at timberline by dark.

One more night we spent in misery, and by the time we reached camp the next morning at ten o'clock, we were pretty nearly all in.

I told the packer to get up the mules and we would move that afternoon to the top of the ridge. Then I lay down on my blankets for a short rest. I had just gotten to sleep when they woke me up and said everything was packed except Beall's and my blankets. It was then three o'clock.

That night it snowed on Glacier and in consequence it was impassable for the rest of the season.

A few days later a letter came in from the chief topographer telling me to re-occupy Glacier and tie on to a new point in the south.

To him went my regrets that, owing to snow on the peak, I would not be able to make the trip again this season.

Mountaineering: A Solace to Sedate Old Age

JOHN H. STRONG

THERE are more mountaineers, actual and potential, scattered over the country than most of us realize. They are popping up continually. Most of these feel frustrated as they see youth vanishing —to them the only time for the realization of their longing. To these I may have something to say, as well as to those who, having climbed, begin to feel that they are superannuated.

But at the outset two things should be made clear. First, I want to conciliate the men of the medical profession. Certainly a man with one foot in the grave should not plant the other on the summit of the Dent Blanche or the Matterhorn. When I climbed those doughty peaks, I had both feet with me. I am not against common sense and all the laws of health. I sometimes have a cardiogram taken. In 1925, at the age of fifty-eight, I consulted a New York doctor of reputation, and was warned never to do an energetic thing—never to walk against a strong wind. Shortly after, I consulted a reputable physician in Switzerland, and he said, "You should climb the Wildstrubel"—pointing to the snow peak at the head of the valley above Adelboden. Now what does one do when the doctors disagree? One obeys the doctor whose advice one likes best. I did that, took up serious and systematic climbing, and soon became convinced that many people lay off mountains just when they ought to take them on. Of course one must have faith. One must follow the inner light. There is such a thing as divine guidance. Apart from that everything is dangerous.

A second thing I would make clear is that I advance no extravagant claims in favor of old-age climbing, as though it were abler, more exciting, or more rewarding than the climbing of the young and the strong, the foolish and the foolhardy. Unquestionably, the young have their ecstasies. I should like to know this minute just how it feels to be sixteen. All I contend for now is that climbing in mature life has not only its distinctive difficulties but also its distinctive rewards, and I venture to mention some of these.

What are the rewards of old-age climbing? I put at the top of

the list its *leisureliness*. You make haste slowly. Why rush? You can't. What price glory? Too great, too costly.

When I was young and inexperienced, I climbed a Swiss mountain on the run, drank of every cold spring to lower my temperature, broke every canon of sound mountaineering, nearly killed myself, and enjoyed it immensely. Since then it has been my habit to let the steady stream of youthful climbers pass me at the start, but only to leave many of them behind with their tongues hanging out before the climb is finished.

Guides are considerate when the client has one foot in the grave. At Saas Fee a guide chafed a bit at my leisureliness, but Kaspar Grass, of the Engadine, was more like a snail than a human being when we climbed the Piz Morteratsch and the Piz Bernina, charming me with his music and his conversation; and Antoine Georges, my guide for seven years, now in heaven, with whom I expect to climb many a beautiful peak in the next world, was the perfection of consideration.

Between sixty and seventy, one no longer specializes in "first ascents." There are no records to break, no fame to win, no summits to "conquer." We do not conquer the great peaks—we cultivate them. They are not enemies but friends, and not less so because they do not rush to kiss your feet the moment they catch sight of you.

In 1928 I happened to be in Zermatt when Toni Schmid and his brother Franz scaled the north wall of the Matterhorn. All night they hung on that terrific wall. Zermatt believed them lost; but they made the summit, slept off their weariness in the Solvay hut, and descended to be fêted by Mr. Seiler at a great dinner and followed round the streets whenever they appeared by all the small fry of Zermatt. No queue of youngsters ever followed me around like that. It is one of the glories one relinquishes for more substantial pleasures.

Next in the list of rewards for the mature climber I would put that *openness to impressions* which is the fruit of leisureliness. The mountains have something important to say to people who are not driven by athletic ambition or boiling over with superfluous energy.

The gladdest day I have ever known among the great peaks was the day of a solitary climb. One perfect morning at four I set out from Adelboden to climb the Bonderspitze. The haycocks were

phosphorescent in the purple darkness that filled the valley, and every peasant's house was asleep. I crossed the Engstligenbach, mounted the steep meadows beyond, and, plunging into a copse as quiet as a temple, paused to hear the note of some new alpine bird. Climbing higher, I reached the rude chalets and soon left the tinkling birds far behind. At 6800 feet by my aneroid the ground froze, and I stepped off upon snow so tracked up that I could almost see the chamois at their superterrestrial field-day sports. Still higher, sharp reports told of invisible hands playing tenpins with boulders among the echoing crags. Then the sun reached me, and diamonds flashed at my feet; and a yellow flower, with a circulation and heat that had melted the snow about it, lifted its head out of a tiny hole and said, "What on earth are you doing up here?" At last I gained the summit and, leaning on the rude cairn marking it, worshipped, like Jacob of old leaning on his staff.

Stretched out on the rock inclining toward the Kandersteg side, I heard the faint music of a distant waterfall and, looking up into crystal-clear air, saw clouds steam up out of nothingness and vanish into nothingness again; and far across the valley I saw the mountaineers, like specks of soot against the pure white, already descending the high snows of the Blümlisalp. Then, passing the crest, I plunged down a thousand feet into warmth and verdure, sat down on a sunny bank strewn with violets, primroses, forget-me-nots, bluebells and gentians, ate my lunch, and thought my heart would burst for joy!

A third reward vouchsafed the superannuated climber is the *effect of costly victory on general morale.* For it is beyond question that at sixty, one pays for a full-grown peak a price such as no youngster can pay, and it is an axiom that the fruits of conquest are in proportion to the difficulty surmounted.

I have sometimes seriously doubted that any mountaineer has striven and suffered as I have. On Mont Blanc I leaned hard on my early knowledge of arithmetic, saying to myself on those endless snow fields, "Since I have done those ten steps, I can do ten steps more." On the Dom, which I am happy I do not have to climb again, I put under contribution every passage of the Bible promising courage to the faint of heart and strength to the weak. Something happens inside one who measures his puny strength against those interminable pitches and those shattered cliffs. I never returned

home after a summer in Switzerland without feeling that some of that everlasting rock had been deposited inside me.

Then there are perquisites reserved for the septuagenarian mountaineer which men in the early decades of life might be too proud to ask or accept. For example, how many have ever had a guide to carry a violin for them over a high Alpine pass in a severe snowstorm?

We were at Fafleralp, near Ried, in the Lötschental, Antoine Georges and I, and were pointed toward the Lötschenlücke, the Concordia hut, and the Finsteraarhorn. When I explained that I had with me a violin which had either to be expressed elsewhere or lugged along, he promptly replied, "Je le prends." We started. Reaching the glacier, we had just begun the long ascent when a heavy snowstorm came on. It was an amusing sight—Antoine trudging along, white as Santa Claus, with coiled rope and ice-axe in one hand and a violin in the other. Putting up at the hut at the top of the pass for the night, we next morning crossed the Great Aletsch glacier to the Concordia, where the weather turned bad, detaining us for two whole days—leisure which I beguiled away with my violin. It may have been my indifferent technique that inspired a fellow-climber to protest: "When we come away to climb mountains, we leave the music at their foot, make our ascent, and then pick the music up again as we leave." But this only stirred Antoine to counterattack: "Monsieur," he explained, "has brought his violin with him to praise the good Lord for the gift of the mountains and for the power to climb them." After that broadside, Antoine told me, the specialist on mountains shut up tight as a clam.

The perquisites of aged mountaineers may prove even more substantial. It was that same year on the Finsteraarhorn. We had finished the interminable snow slope leading up to the spine of rock which in turn points the way to the summit, and had found the rock wet and icy. From almost constant contact with it, one of my hands had got so cold that I feared frostbite, which might have meant the end of my violining. Learning of it, Antoine halted, opened his coat, sweater and shirt, thrust my cold hand into his body-warmth, and held it there till pain announced returning circulation. Nŏble fellow! I wanted no higher honor than became mine one day when he called me his best friend.

Nor was that day without thrill. As we were descending and

SWISS SUMMIT OF THE MATTERHORN
Photo, Elizabeth S. Cowles

DESCENT OF THE DENT BLANCHE

Elizabeth S. Cowles

had reached the end of the long ridge of rock, we passed two Germans on their way up. I remember how tired the second man looked. Both had done the foolish thing and left their ice-axes down below, and the tired man was holding onto a looped rope attached to the other for support. But a little later—how soon I never knew—both slipped and fell, and never stopped falling till they dashed into the barrier of rock crossing the snow field at its base. Next day guides from the Concordia came to gather up their dead bodies.

But to return to substantial perquisites, I shall not soon forget the sharp pitch of rock just outside the Dent Blanche hut and at the beginning of the climb. Joseph Georges, "le Skieur," nephew of Antoine, was guiding my daughter and me that year, and had started up that pitch like a scared chamois, setting me to most vigorous and painful puffing. And what did Joseph, whom I immediately followed in the caravan, do? Turning, he stripped my pack from off me, thrust it into his already overloaded pack—and I never saw it again till we regained the hut, the climb accomplished!

There is one more perquisite of the mature climber, the last I shall mention. Again I would not claim too much. It touches intimate knowledge of that remarkable personality, the Swiss guide. It looks into his heart. Age, of course, has no monopoly here. Though I have had some tests among the high peaks and known some dangers, there are, I realize with admiration, experts who number among their exploits feats of which I know next to nothing—breath-taking, nerve-racking, hair-raising mountaineering adventures which, for all I know to the contrary, may uncover to the hero, in the event that he survives, traits and powers in a guide to which I am practically a stranger. Yet I would appeal for a sort of acquaintance and understanding of this extraordinary species (*homo ducens in montibus*) which is vouchsafed when the climber is in his sixties, and his friends are shaking their heads and saying, "He's slipping!"

The Scottish friend who introduced me in 1925 to Antoine Georges, of La Forclaz, in the Valais, said, "You will find in Antoine three things: a perfect gentle knight, a mediaeval saint, and a tremendous man of the mountains." I found in him all three.

Antoine had been selected as one of the two guides to represent Switzerland at the Paris Exposition. But he disliked the flatness of the country and the noise of the city. He wanted to climb the

framework of the Eiffel Tower, and they would not let him. So he went home.

His humor was contagious. One day, having set out with a client to climb the Aiguille de la Za—not by the face but by the easy way via the Bertol—Antoine found the mountain infested with humanity. The center of the group was the Prince Consort of Holland, too corpulent at the time to be seen on a mountain. There were both guides and porters. The guides went before with the rope; and, when the porters had safely placed His Highness' feet, they called to the guides, "Tirez!" and the guides would haul His Highness to their safe anchorage up above. Then it was celebrated with champagne all around, and this was in process of accomplishment when Antoine and his client arrived. Surveying the mountain, Antoine perceived that there were obstacles in his way. "La montagne est occupée," he crisply observed, and took his client to climb elsewhere.

Antoine's heart was full of song. We sang on every peak after I had caught my breath and the warm hand of congratulation had been extended. "Là-haut sur la montagne"—how often the rare air of sunny summits reverberated with that lovely song! He trained me in the songs of his tiny French-speaking village.

A man with a heavenly mind, Antoine was given insights that few possess. Talking one day of the bad rocks of certain peaks that pile up difficulty for the climber, we asked him, "Antoine, what mountain do you dislike the most?" A cloud came over his face. "Ah," he replied, "never could I say that I disliked any mountain." He could call a course *mauvais,* or even *maudit,* but never a mountain!

One day just below the Concordia we found the ice of the glacier very bad. "C'est un traiteur! C'est un traiteur!" he exclaimed. "You fall in, and I may get you out. I fall in, and you cannot get me out." Yet as we left that same glacier for the path at the Märjelensee after the last climb of the season, he said wistfully, "Nous laissons les lieux célestes!"

Rare soul, sacrificed to the folly of two careless climbers, what insight God gave you in the secret of mountain beauty! Perhaps it is for that that I revere and love you the most.

For what is mountain beauty, and the imposing height of it we call sublimity? What is this tender, yet august thing, that sets

the heart throbbing and the spirit soaring? Has it *intention?* Has it a meaning to be deciphered, a message to be heeded and known?

Is mountain beauty their color, from the purple poured round their feet to the crimson and gold that smite their summits at sunrise? Is it their lights and shadows, the mists that wreathe them, the clouds that float like airships among their peaks, or rest at evening over them in benediction? Or is it all these and vastly more, fused into harmony as by a divine touch? Libraries have been written about beauty, yet the mountains have never surrendered their secret to the masters of analysis. Only the pure in heart like Antoine have known it.

We were climbing the Aiguilles Rouges, near Arolla, and had mounted in full moonlight to the higher pastures, soft under foot, which slant upward to the basal rocks on which that splendid mountain, rust-red, favorite of rock climbers, is founded. We had no lantern. We needed none. Ethereal light flooded everything from the turf under foot to the pale summits standing guard above our heads. Suddenly Antoine, who had been ahead, stopped, turned in his tracks, and said, "The moon is shining, the stars are glistening, all the world's asleep, and we walk in the light of God!"

Prepared spirit, strong of hand and of sure tread, reading the rocks at a glance, fertile in resource, overflowing with music, playful as a child, and ever in touch with the superterrestrial—he had seen into the heart of beauty as many a philosopher, many a book-maker, many a master of aesthetics has strangely failed to do; for he saw on the moonlit mountaintops the sheen of invisible garments, and heard in the silence of the summits the sound of inaudible feet!

"Ye are bound for the mountains—
Ah, with you let me go
Where your cold distant barrier,
The vast range of snow,
Through the loose clouds lifts dimly
Its white peaks in air—
How deep is their stillness!
Ah! would I were there!"

American Alpine Club Research Fund

*The American Alpine Club Research Fund was established in 1945 to promote scientific, literary, educational or historical research and publication related to mountaineering, geology or geography. The trustees of the Fund are William B. Osgood Field, Jr., Joel E. Fisher, Weldon F. Heald, Christine L. Orcutt and Walter A. Wood. In the ensuing pages, projects of the years 1947 and 1948 are reviewed.**

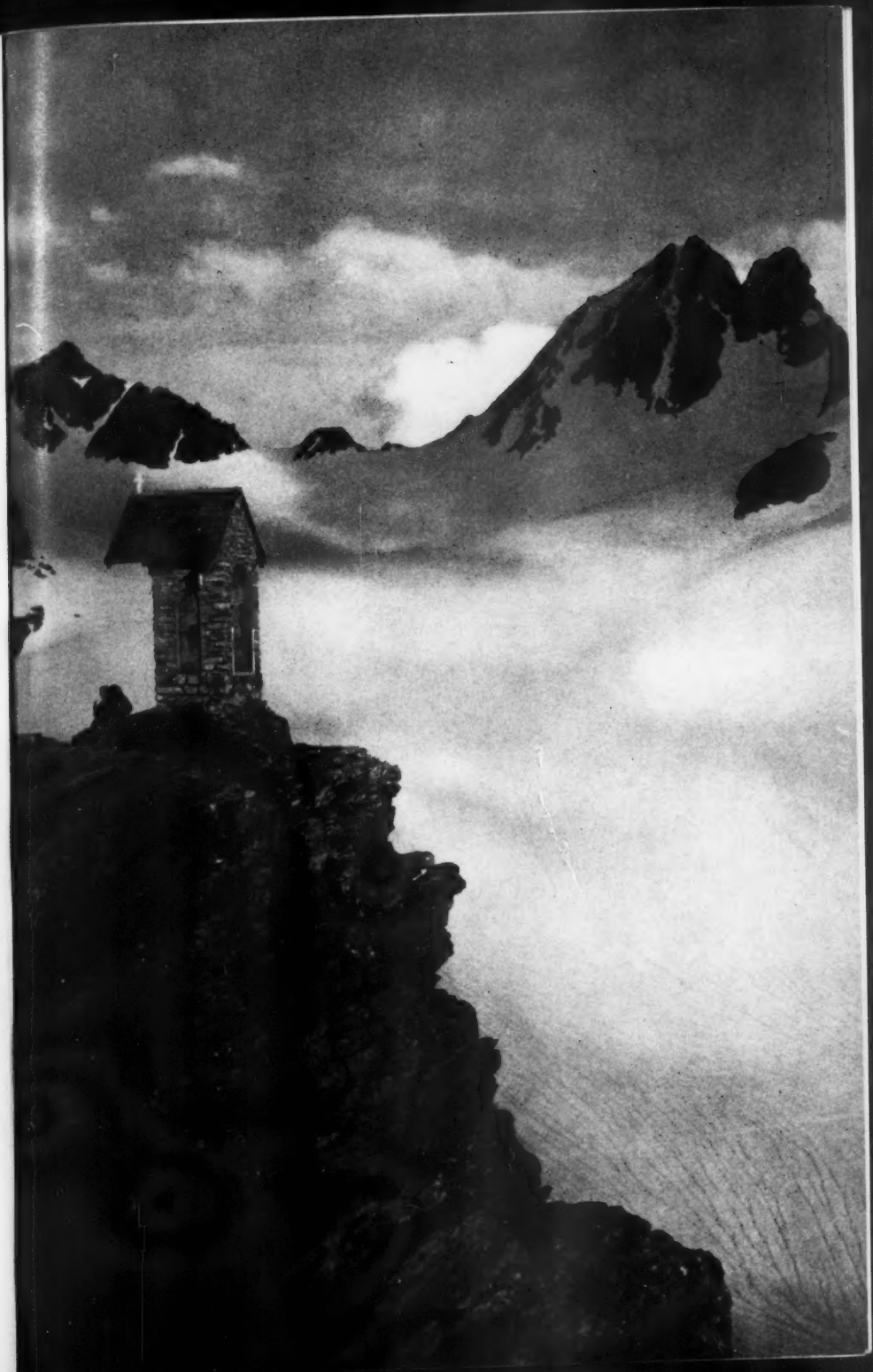
6. GLACIER SURVEY IN THE TETONS, 1947

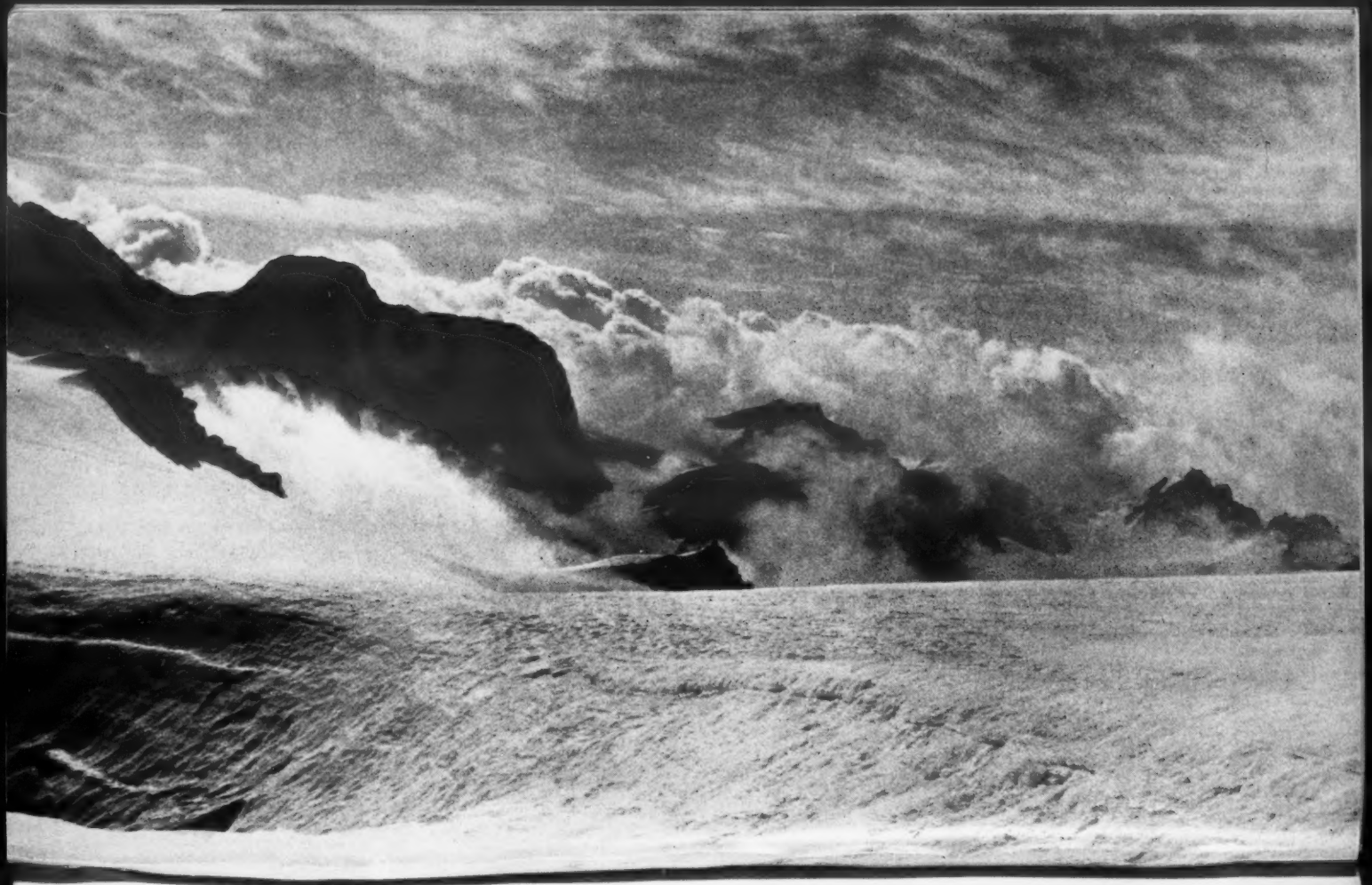
MAYNARD M. MILLER, *Director*

In an effort to record the present position and character of the small glaciers in the Grand Teton National Park in northwestern Wyoming, I chartered a small airplane on 5 July 1947 and observed the range from the air. Ray Garner, of Phoenix, Arizona, acted as pilot and with his combined skill and interest in the project helped obtain an aerial photographic record of the nine largest remaining glacier masses in the Park. Although it was early in the summer and the terminal portions of several of the glaciers were not yet exposed by the melting snow, we were able to see the positions of most ice fronts. Of special significance was the astoundingly fresh appearance of the terminal moraines, which in many cases have been practically unblemished either by erosion or by vegetation cover since the ice retreated from their inner sides. Some of these moraines are tremendous; they stand as much as hundreds of feet in height, indicating a very strong and important recent advance. The great distance between the present ice level and these moraines, and the relative tininess of the area now covered by the actual glacier, indicate an even more startling recent recession, probably within the last 60 to 100 years. The implication is that these Teton glaciers are not remnants of a slowly wasting Pleistocene source,

* Cf. "American Alpine Club Research Fund, 1946," *A.A.J.*, VI (1947), 328-43. The reports there published are numbered from 1 through 5. See also "Report on the Research Fund," *A.A.J.*, VII (1948), 81-2.—*Ed.*

SHRINE BEFORE THE MARINELLI HUT
Photo, Elizabeth S. Cowles





but rather came into being after the Pleistocene geological time stage in what has been described as the "Little Ice Age" of our own times[1] and are now suffering very rapid shrinkage. If the present trends continue, a few more decades will see no glaciers at all in the cirques and hanging pocket valleys of these high and magnificent granite peaks.

In detail the following glaciers were observed and photographed from the air: Falling Ice Glacier, Skillet Glacier and Triple Glaciers, all on the east and north flanks of Mount Moran; Teton Glacier, with its tremendous morainic cusps; Tepee Glacier, in a steep cirque on the east face of the Grand Teton. Farther south, the Middle Teton Glacier was photographed to tie in with ground observations made a few days before this flight. The several unnamed glaciers on the west side of the range were observed as well.

A perusal of available earlier records of these Teton glaciers indicates that data useful for comparative analysis are sparse. A few mountaineers in recent years have taken photographs which are useful, and Dr. W. S. Ladd on 9 July 1940 obtained fine aerials of the two Teton Glaciers and of Falling Ice and Skillet Glaciers on Mount Moran. These are helpful in showing relative conditions in the last eight years. Any additional views in years to come, whether by alpinists or by persons travelling over the range in aircraft, will be most useful in furthering this study and should add significance to the systematic record now begun. Such contributions should be obtained as late in the summer as possible, preferably in August, when bare blue ice is exposed. Also, observations on the elevation of the late summer snowline will be useful in correlation with similar studies made in the other great mountain and glacial areas on the North American continent. A critical analysis of such glacier fluctuations is being carried out by the Department of Exploration and Field Research of the American Geographical Society in New York City as part of a worldwide investigation. Closely coordinated with this is the glaciological program of the American Alpine Club Research Fund, which supplied film for this aerial study.

[1] F. E. Matthes, in the chapter on glaciers, *Physics of the Earth Series, No. 9* (New York: McGraw Hill, 1942), pp. 241-5.

BERNINA TOUR

Photo, Elizabeth S. Cowles

7. AERIAL SURVEY OF ALASKAN GLACIERS, 1947

MAYNARD M. MILLER, *Director*

In July 1947 I had the good fortune to return to Alaska and to fly over a large portion of glaciated country which I had never seen before. At the same time I was able in the course of a very few days to fill in a number of gaps in the glacier record which the Department of Exploration and Field Research of the American Geographical Society has been accumulating during recent years. Some of these gaps were in districts along the southeast coast, where I had been making ground surveys of glacier termini with William O. Field, Jr., in 1941 and with William Latady in 1946.

An unusually fine break in coastal weather permitted a much more rapid photographic survey than I had dreamed possible. Using a German Combat Aerial Camera and a Speed Graphic, I was able to take more than 300 photographs for the collection at the American Geographical Society. This accumulation is being used for correlative comparison studies with thousands of other photographs and information garnered in the last few decades from Alaska's glacier areas. It was through a grant from the American Alpine Club Research Fund that sufficient film was purchased for these 1947 flights.

Following the pattern of our 1946 field investigations, I began at the Stikine River near Petersburg, where a number of glaciers were photographed for the record. Among these was Le Conte Glacier, having the farthest south tidewater glacier terminus on the earth. In general, the ice masses in this forested-fiord district are slowly but steadily receding and thinning. Farther north, however, in the vicinity of Juneau, the huge Taku Glacier and its distributary, Hole-in-Wall Glacier, are continuing to advance, as they have for half a century, from a source deep in the heart of the ice field back of Juneau. The explanation of this anomalous advance is extremely interesting because of the unusual conditions pertaining to the probable nourishment of the Taku as compared to those attending other similar large glaciers along the coast.

While flying over Glacier Bay, 100 miles northwest of Juneau, I observed the Carrol and Hugh Miller Glaciers and brought up to date missing elements in the ground survey Latady and I had made, in conjunction with Douglas Brown, of Meriden, Connecticut, one

year before. General recession and thinning is still the pattern in most parts of Glacier Bay, though interesting recent advances have been recorded in Reid and Tarr Inlets. The rapidly shrinking Muir Glacier indicated possibly another eighth-of-a-mile retreat in the ten months since I had visited it. In contrast, the glaciers on the west side of the Fairweather Range from Cape Spencer to the Alsek River showed several major ice streams apparently holding their own and showing practically no recent retreat. La Perouse Glacier and the large unnamed ice front south of it were both within a very few hundred yards of a mature forest trim line. The advanced termini seemed to be those flowing from high-level névés in the vicinity of Mount Crillon and Mount Lituya; whereas generally to the south, toward the low-level Brady Ice Field, and to the north in the direction of Dry Bay, the larger glacier termini showed more prominent and significant recessional change.

The third area flown over was the rugged and seldom visited region of the upper Alsek River and the spectacularly steep valley of receding Melbern Glacier and its tributaries north of Grand Pacific and Muir ice fields. Here a sporadic covering of clouds precluded photography on a number of interesting tongues of ice; however, a few important glaciers were photographed and enough seen to suggest the need for further investigation. This was once an area covered with tremendous thicknesses of glacial ice, but at present the remaining glaciers are waning rapidly. Concentric recessional moraines on some of these glaciers indicated several periods of recent advance and retreat—in many ways similar to the pattern indicated in the Teton survey made earlier in the summer of 1947. On this same flight the coastal glaciers which drain onto the vast Yakutat Plain from the southern peaks of the St. Elias Range were photographed and a record continued on Fassett, Rodman, Chamberlain and Yakutat Glaciers, all of which seemed to show recent change, several prominently in retreat.

The advancing fronts of Hubbard and Turner Glaciers in Disenchantment Bay were observed, and the continued recession of Nunatak, Hidden and other glaciers in Russell Fiord was also recorded on aerial film. The small and delicately balanced high-level glaciers and the dirty, moraine-covered, wasting surfaces of Miller, Haenke, Black and Galiano Glaciers in the vicinity of upper Yakutat Bay were noted with special attention. The huge 1300-

square-mile expanse of the Malaspina piedmont ice sheet was flown over and many photographs of the fracture patterns and the fantastically contorted medial moraines obtained. This also included an extensive aerial reconnaissance of the Guyot and Tyndall Glaciers in Icy Bay. This newly formed body of water is continuing to be enlarged by the recession of the unusually spectacular and active Guyot Glacier front, although it seems that this retreat has slowed down considerably in the last ten years. The broad terminus of the Bering Glacier, another vast expanded bulb of ice similar to the Malaspina, was observed; and some of the interesting avalanche-fed glaciers dissecting the seaward scarp of the Robinson Hills were photographed on the return flight east of Yakataga.

I flew west to Cordova a few days later and in that district covered, among others, the Sheridan and Sherman Glaciers near the Copper River. These, too, showed signs of retreat. On the other hand, farther to the west in the northern inlets of Prince William Sound, I saw some large glaciers advancing. This latter region, therefore, seems to show marked contrast to the trend of recession in most other parts of Alaska, although the conditions are somewhat analogous to those seen in the vicinity of Lituya Bay west of the Fairweather Range. The mighty Columbia Glacier, however, exhibited recession of a few hundred feet since the 1935 observations made by Field. This particular flight took me across the Chugach Range to Anchorage, and en route I was able to photograph Knik Glacier and others in the vicinity of Lake George.

A satisfactory interpretation of the recent behavior of the glaciers surveyed by the above flights must await the completion of much more field work, including not only a continuation of the studies already well begun in the terminal portions of the zone of wastage, but also an integration with high-level studies in the zone of accumulation. It also awaits a thorough study of current meteorological and ecological conditions and those of the past. Further, it necessitates a careful analysis of the physiographic conditions involved, much of which can be gained from details available by study of a collection of 3200 selected trimetrigon aerial photos taken by the Army in 1941-43. This collection is now filed at the American Geographical Society and, under the direction of William O. Field, Jr., has been captioned and indexed preparatory to this work. Of additional value will be the set of vertical aerial photographs the U. S. Navy

scheduled one of its photographic squadrons to take in the summer of 1948. It is optimistically hoped that, with these aerial data and with the ground record already obtained, the actual regional relationships of these Alaskan glacier fluctuations will soon be understood and perhaps further clues found to explain them. At least a more reliable basis will be formed for defining a correlation between these fascinating glacier variations and climatic change. The sequel to this, of course, will be not only to climb higher in future investigations to the zone of accumulation, but to travel farther into new areas and to see whether, by using study techniques developed in Alaska, we can determine a like behavior in the terminal portions of similar types of glaciers on the opposite side of the earth.

8. MAP OF THE PALISADE GLACIER, SIERRA NEVADA

WELDON F. HEALD, *Director*, and CHRISTINE L. ORCUTT, *Editor*

A map of the Palisade Glacier has been published as the basis upon which future changes in the glacier will be recorded on overlays of the same scale. These overlays are to be made from resurveys of the glacier at suitable intervals in the future. It is anticipated that, through accurate checking with monthly climate data of South Lake Weather Station, a relationship between the climate in that part of the Sierra Nevada and the observed variations in the glacier will be established.[1]

On 1 February 1948, 1000 copies of the map of the Palisade Glacier were photolithographed by Spaulding-Moss Company, Boston, on U.S. Navy priority Warren Water Resistant stock of an exceptionally tough fiber. These maps, measuring 25 by 25 inches, were published on the scale of 500 feet to the inch, with 50-foot contour intervals insuring a maximum degree of accuracy in delineation. The text was printed on the back of the map in the same Fuchlang brown ink used for the contours on the face. This color was chosen to eliminate the additional cost of a fourth color run through the press, and because it was a color dark enough for legibility but light enough to avoid showing through. The foreword

[1] See Weldon F. Heald, "American Alpine Club Research Fund, 1946: 3. Palisade Glacier Survey, Sierra Nevada," *A.A.J.*, VI (1947), 332-9. See also "Report on the Research Fund," *A.A.J.*, VII (1948), 81.

was written especially for the map by the late Dr. François E. Matthes, whose interest and enthusiasm did much to stimulate the project. His death in late June brought a sense of great personal loss to those who had enjoyed the privilege of working with him. A very complete description of the glacier, by Weldon F. Heald, Director of the original survey, follows the foreword. Both texts emphasize the need for glacial observation, as well as the value of glacial surveys and maps for information which will lead to increasingly accurate and earlier forecasts of changes in climate.

Folded copies of the map, inserted in envelopes to fit and suitably backed by cardboard, are obtainable at one dollar a copy, postpaid, from the American Alpine Club Research Fund, 113 East 90th Street, New York 28, N. Y.

9. STATUS REPORT OF GLACIOLOGICAL WORK ON THE SEWARD ICE FIELD, YUKON TERRITORY

ROBERT P. SHARP, *Director*

[Professor Sharp is a member of the Department of Geological Sciences, California Institute of Technology. As a recently elected member of this Club, he joins that distinguished group of scientists—Le Conte, Matthes, Chamberlin, to name a few—whose work in mountain geography has reflected increasing credit on the Club. As our activities focus more significantly upon research and on our enhanced understanding of the scientific aspects of our sport, it will be through the leadership of men like Bob Sharp that we shall succeed in guiding our work to the profit of mankind, without diminishing the personal gratification which our sport provides us.—WALTER A. WOOD]

Thanks to generous support from the American Alpine Club Research Fund, the Office of Naval Research, the Arctic Institute of North America, and the California Institute of Technology, our group was able to capitalize upon the excellent opportunity for glaciological research offered by Walter Wood's "Project Snow Cornice." The glaciological party, consisting of Maynard M. Miller, George P. Rigsby, Bernard O. Steenson, F. Beach Leighton and R. P. Sharp, ventured forth with high hopes, ambitious plans, and

much equipment. The fact that some of the high hopes and ambitious plans failed to materialize during the summer on the Seward Ice Field was disappointing but not surprising. It must be recognized that the summer's work was well worth while if for nothing more than the information it provided as to what can and should be done in the way of future glacier studies in this area.

Some aspects of American glaciological research have kept apace of foreign advances through the efforts of Max Demorest and François Matthes, now both deceased, and a small group of zealous workers. However, we have never had on this continent a program comparable to that of Ahlmann and his associates in the North Atlantic or to that of the British Jungfraujoch Research Group and the Swiss investigators in the Alps. It will not be possible to catch up with foreign glaciological programs in one, two, or perhaps even ten field seasons, but it is our hope that "Project Snow Cornice" will give birth to a generation of vigorous glaciologists with the training, drive and enthusiasm to give North American glaciers the treatment they deserve and to bring our work up to the same level as that carried on in Europe. This should be recorded as one of the objectives of the present project, and the American Alpine Club is playing an important role in furthering American glaciological research through the activities of its members and by its financial support.

A large part of the 1948 program was designed to obtain as much information as possible on the physical properties of ice and firn in the Seward Ice Field. We were interested in determining the temperature regimen of the firn, not only for comparison with other areas, but because it is an expression of the environment and geophysical condition of this ice field. In order to record temperatures at various depths, a number of holes were "bored" into the firn by means of an electrically heated hotpoint activated by a gas-engine generator. A maximum depth of 204 feet was attained by these thermal borings, and a greater depth could easily have been reached if additional drill pipe and cable had been available. Temperatures were measured by means of thermohms (resistance coils) and a specially calibrated Wheatstone bridge kindly loaned by the National Bureau of Standards and previously used by F. Alton Wade in Antarctica and Greenland. Twelve thermohms were set in the firn at depths ranging from 3 feet 5 inches to 204 feet. All

temperatures recorded were essentially at zero degrees Centigrade. In other words, by mid-July the firn mass was isothermal—that is, essentially at the pressure melting temperature—to at least a depth of 204 feet. This was somewhat disappointing, as we had hoped to catch a remnant of the winter's cold wave in the firn and to trace its dissipation as the season progressed. However, the fact that the firn of the Seward Ice Field was isothermal by mid-July is a worthy discovery in its own right. This is a surprisingly early date for such a condition to be attained and is an expression of the unexpectedly temperate summer environment of the area—if the conditions of 1948 are at all representative.

A total of 193 density determinations were made in the firn, mostly in a shaft 50 feet deep excavated at the so-called airstrip station about three miles west of the base of Mount Vancouver. Densities ranged from 0.50 at the surface to 0.85 at a depth of 50 feet, with blue ice bands within the firn having densities close to 0.90. The minimum density of 0.46 was measured at a depth of 4.5 feet in a firn layer just below an ice band. Low density layers below ice bands were characteristic to a depth of about 11 feet, and this relation supports the concept that refreezing of descending melt-water has much to do with increasing the density of firn and converting it to glacier ice. The undulating upper surface of ice bands in the firn and their horizontal structure, which was clearly co-extensive with layering in the firn, also suggest that the ice bands grew principally by refreezing of descending melt-waters. The existence of densities as high as 0.50 at the surface shows that the winter's snow can be converted to firn, density 0.45 or greater, within a period of only a few months in this environment.

In addition to the many blue ice bands, we were impressed with the numerous roughly cylindrical, vertical, pipe-like masses of coarsely crystalline blue ice in the firn, which we christened "firn pipes" as a field designation. A typical firn pipe extends downward for several feet, has a diameter of 5 to 10 inches, and usually ends abruptly at an ice band. Some firn pipes extend downward from ice bands or serve to connect two ice layers, and a few extend without interruption through ice bands. Firn pipes appear on the surface of the ice field as small rounded knobs a few inches high. It seems that the pipes must mark the channels of melt-water circulation through the firn, but why they are so regular and

pipe-like is still not clear. It is also possible that exudation of water vapor from the firn may have something to do with their development and growth, but this thesis is not too highly regarded.

The amount and mode of melt-water circulation in the firn has been recognized as highly significant in many glacier areas, but it appears to be especially important here because of the abundance of melt-water. The studies of melt-water behavior in 1948 suffered from the fact that our melt-water pans were poorly adapted to the conditions existing on the Seward Ice Field. Our efforts might be described as a "dry run" if one can use such terminology in connection with studies of melt-water. The results obtained, although of only relative value, are intriguing. Specific layers in the firn made water at rates up to 300 cc. per hour for a pan of 1439 cm^2. Layers between 4 and 10 feet beneath the surface carried the most water, and only small amounts were collected at depths greater than 10 feet. Most puzzling was the frequent shift in major water flow from one layer to another without apparent rhyme or reason. When we know the reason for this, we shall know a lot more about the internal constitution of firn fields and the changes produced in them by circulating melt-waters.

Another significant matter in connection with melt-water was the discovery of standing water in crevasses at depths between 60 and 70 feet. This, plus the behavior of the thermal boring apparatus at and below 65 feet, suggests that the entire Seward Ice Field may be saturated with water at a depth of 60 to 70 feet, or in other words has a ground water table at about that level. This is probably too deep to be affected by the winter's freeze, so the Seward Ice Field may harbor a great year-round reservoir of water available to anyone who cares to use it.

Pits dug in the firn near the airstrip station showed two faint dirty bands thought to represent the summer layers for 1946 and 1947. If this interpretation is correct, the excess of accumulation over ablation at this locality was 17.5 to 18 inches of water in 1946-1947. Preliminary data indicate the excess of accumulation for 1947-1948 to be about 23.5 inches.

Ablation, primarily by melting, at this same locality totaled 27 inches in 39 days between mid-July and late August. Elsewhere on the ice field, melting of 16 to 17 inches of firn per month during July and August was recorded. Daily ablation ranged between the

extremes of zero and 1.5 inches in areas away from the complicating influence of bedrock exposures. No ablation occurred between 22 and 29 August, so the ablation period may have come to an end by that time. Water equivalents for the above figures may be obtained by halving them, as the average density of the melted firn was close to 0.50.

Attempts to make short-period observations of ice movement in valley glaciers came to naught as the glacier observed moved too slowly, about 6 inches a day, to permit the type of analysis desired. This was not entirely fruitless, however, as it demonstrated that surveying instruments have a diurnal period large enough to produce the anomalous effect of making a glacier appear to move up the valley at certain times of the day. Needless to say, such results drive the glaciologists to a point of distraction. A method of reference to fixed points on the far side of the glacier's valley was devised, and in 1949 study of the more rapidly flowing Seward Glacier will be attempted.

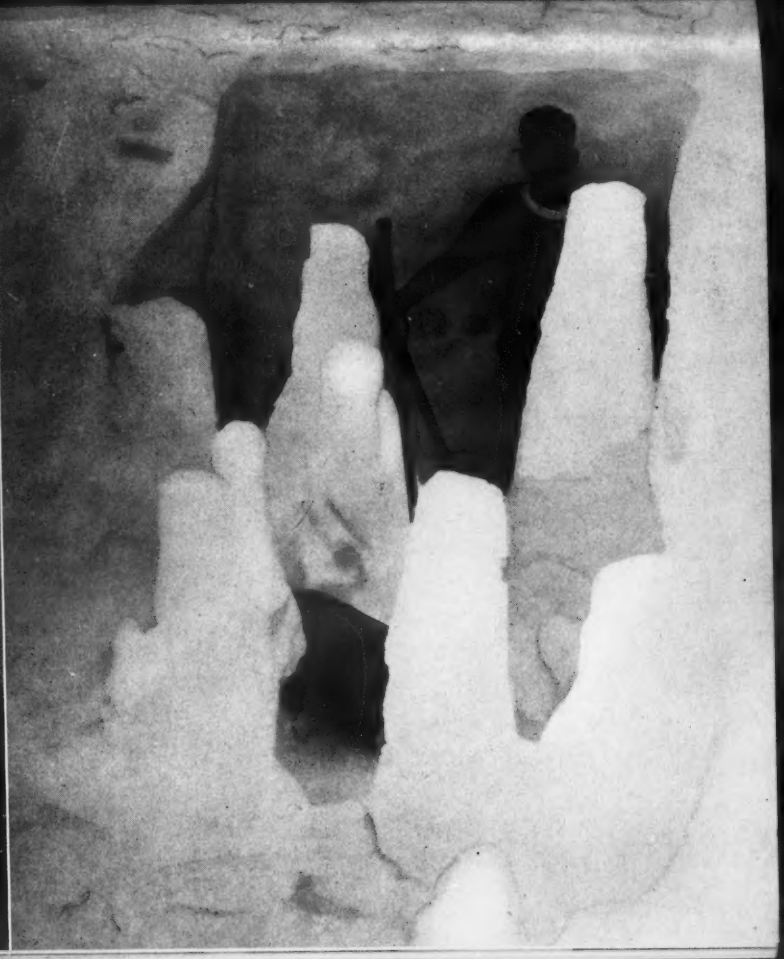
Bernard Steenson's work with radar as a means of determining ice thickness gave promising, but as yet unconfirmed, results. A reasonable transverse profile was obtained by radar soundings across a small valley glacier on the west slope of Mount Vancouver. The greatest depth of ice sounded in this profile was 700 feet. Dr. T. D. Northwood, of the Canadian National Research Council, working with acoustical apparatus, confirmed within reasonable limits of error the radar results at one station, but time and other conditions did not permit confirmation of the entire radar profile. A seismic party representing the Canadian National Research Council also operated in the region but experienced difficulty in getting sufficient energy into the ice and was further handicapped by old and unsatisfactory equipment.

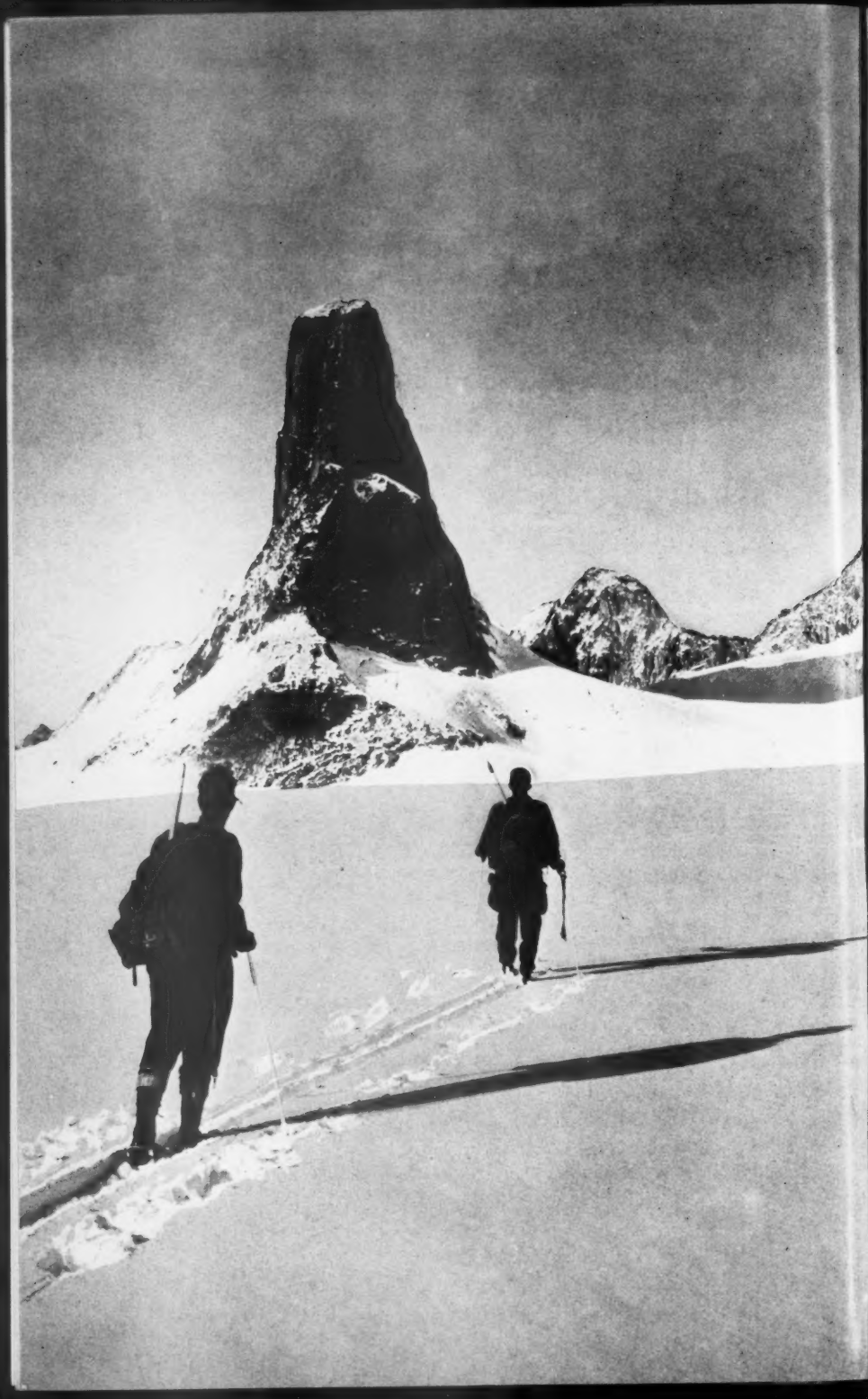
Among other matters investigated were free-water contents of various firn layers, the relative movement of crevasse walls, differential ice movement within the Seward Ice Field, size of ice crystals in the Malaspina Glacier, rate of ablation on the Malaspina Glacier, and bedrock geology as exposed on nunataks and rocky ridges around the edges of the Seward Ice Field.

We plan to return to this area in 1949 with a more definitely focused program of investigation. It is hoped that Dr. Henri Bader will join the group to make crystallographic and petrofabric studies

LEFT: USING A 50-FOOT LADDER
Investigation of englacial conditions in the crevasses at the 5700-foot level of the Seward Glacier

RIGHT: SIX-FOOT "FIRN PIPES"
Excavated from the névé near the Seward Glacier airstrip camp
Photos, M. M. Miller





on the Malaspina Glacier and possibly also on the Seward Ice Field. An extension of the radar studies is planned, and all efforts are being bent toward the procurement of satisfactory seismic equipment with which to confirm the radar results and to carry out a series of profiles across the Seward Ice Field, as well as on the Malaspina Glacier if the logistics of access to the Malaspina can be solved. We shall redesign apparatus and carry out further studies on temperatures, densities, structures, melt-water circulation, and free-water content in the firn. Glacier movement observations will be made in more satisfactory locations. More data on accumulations and ablation will be gathered; and, if proper personnel can be obtained, studies of micrometeorology will be made. We hope to correct some of our mistakes of the past summer and to cash in on preliminary data and information gathered so far.

10. STUDIES OF ICE TEMPERATURES OF SWISS BERGSCHRUNDS, 1948

JOEL E. FISHER, *Director*

In 1939 T. P. Hughes and Gerald Seligman published data on the below-freezing temperature of the ice of the Sphinx Plateau (about 3600 m.) on the Jungfraujoch.[1] Noting that this ice is *above* the bergschrund, and aligning the data with the voluminous observations of temperatures of névé or glacier ice on many glaciers below their bergschrunds—temperatures always found to be exactly the local pressure melting point— I concluded[2] that the bergschrund marks a boundary: below the bergschrund, the temperature of the ice or névé is at the local pressure melting point; above the bergschrund, the temperature of the ice or névé is below the melting point. Since some friends of mine questioned whether the Sphinx Plateau observations alone constituted sufficient basis for such a conclusion, I made observations in September 1948 during a stay at Zermatt:

[1] "The temperature, melt water movement, and density increase in the *névé* of an Alpine glacier," Monthly Notices of the Royal Astronomical Society, Geophysical Supplement, IV (1939), 631-2 [Publication No. 2 of the Jungfraujoch Research Party, 1938].

[2] "The Pressure Melting Point of Ice and the Excavation of Cirques and Valley Steps by Glaciers," *A.A.J.*, VII (1948), 67-72.

MICHAEL'S SWORD
A meta-volcanic spire on the Juneau Ice Field
Photo, W. R. Latady and M. M. Miller

At about 3610 meters, in the upper wall of the bergschrund on the usual Trift route up the Wellenkuppe (about five minutes below the rocks), the temperature of the ice four feet in from the wall, and some six feet below the surface of snow on the slope, was found to be 29° F (= —1.7° C).

At about 3810 meters, in the upper wall of the bergschrund on the east side of the Feejoch, the temperature of the ice three feet inside the ice wall, and some six feet below the surface of snow on the slope, was found to be 29½° F (= —1.4°C).

Both observations were checked by two thermometers, and both thermometers were rechecked immediately in wet melting snow, in which both read exactly 32°.

Visual inspection of both bergschrunds showed no sign of meltwater ever appearing in the upper walls—no icicles except at the top from purely surface melting, yet the upper wall consisted entirely of clear, compact ice, free of any air bubbles.

As one might say, this ice was the fossilized snow accumulation of indefinite past years, gradually recrystallized and consolidated, without water, over a long period, into such solid ice that a mass of it clearly adheres permanently to the upper slopes of the cirque—until the rock wall itself is undermined by undercutting of its base. This I mention because of the frequently heard statements that the upper wall of a bergschrund moves downhill each year to close up the bergschrund, a new schrund supposedly reopening above the scar. This definitely is not so. Every winter climber and every guide will agree that a schrund fills up each winter by drifting or avalanching powder snow. Such accumulation, unconsolidated with either wall of the bergschrund, naturally breaks away each summer from the upper wall because its weight holds it against the lower wall and the lower wall retreats down valley as the névé below moves down. Thus, the bergschrund reopens every summer at the very same spot, the very same ice still constituting its apparently new upper wall. Nor is there any great facility for transfer of temperatures from that mass of ice above the bergschrund to the true névé below the schrund—there is probably a definite gap in a temperature curve—temperatures below the bergschrund consistently being at the exact pressure melting point (except for cold waves near exposed surfaces), and temperatures above the bergschrund being everywhere several degrees below freezing—well below any local pressure melting point.

These two sets of observations of mine may not be accepted as conclusive evidence; however, the aforementioned Sphinx Plateau observations, that the *temperature of all sub-surface ice, above every true bergschrund, in any active glacier, is always definitely below freezing point,* are confirmed by these observations. (Proper adjustments downward for rise of temperature of the thermometers during time of withdrawal and of reading would give a somewhat lower reading than I reported.)

Care must be exercised in noting that this statement applies only to "active" glaciers. There are moribund glaciers where an apparent bergschrund is really only a crevasse; and above such quasi-bergschrunds, as was noted by W. D. Johnson years ago on Mount Lyell in the Sierras of California, observed temperatures may appear to bely this rule. As to true bergschrunds on active glaciers, I believe temperatures of ice above bergschrunds will always be found to be definitely below freezing.

11. 1948 SEASON OF THE JUNEAU ICE FIELD RESEARCH PROJECT

MAYNARD M. MILLER, *Director*

The Juneau Ice Field Research Project, under the sponsorship of the Department of Exploration and Field Research of the American Geographical Society and with valuable help from the American Alpine Club Research Fund, initiated its first season of field work in September 1948, making studies in the zone of glacier alimentation along the southeastern Alaskan coast. Specifically, the Juneau Ice Field was chosen because of its accessibility for a long-range program and because of the variety of opportunities it presented for thorough study of the various phases of glacier science.

The field program, begun in late August 1948, was under the co-direction of William R. Latady and Maynard M. Miller. These two men had spent some weeks in 1946 making low-level studies of the glaciers which reach tide water in this district from a source deep in the heart of the Juneau Ice Field. Miller also had spent considerable time in 1941 making studies in that same area with W. O. Field, Jr., of the American Geographical Society, and again in 1947 making supplementary investigations from the air of the

ice field's peripheral glaciers. Upon review of the data in hand during the winter of 1947 to 1948, it became increasingly clear that the work until that time had been too much restricted to the terminal portions of these coastal glaciers and that in order to understand the problems of paradoxical shrinkage and advance and the significance of other glacier phenomena in this region, it was necessary to investigate in detail the high areas of accumulation at the sources of these glaciers. Such upper-level observations in turn would have to be critically related with those previously made in the lower portions of the zone of wastage near sea level. Additionally, on the program of the American Geographical Society was a potential study of the little-known ice fields of Southern Chile, and for that reason it was considered necessary to begin detailed and integrated studies of such a prototypical North American ice field for later comparison with conditions to be found on the other side of the earth. Such an investigation would not only furnish valuable information on the status of worldwide glaciation, but also would permit the present climatic amelioration to be more satisfactorily understood and perhaps more reliably explained.

The 1948 season was to be essentially a reconnaissance to determine the nature and character of a representative portion of the thousand or more square miles of interconnected glaciers which go to make up the so-called "Juneau Ice Cap." Detailed studies were on the agenda for the following year. Late summer was considered ideal for these preliminary investigations because the summer snowline was at its highest and the maximum exposure of bare ice could be seen, and also because it gave an opportunity for the field party to observe conditions at high level during the critical transition period when conditions on the ice field changed over from summer to winter. It was likewise planned to use this first season of investigations as a training period for new men and to permit detailed studies and reports to be made on food, equipment and techniques of expedition efficiency which could be used for the later work. Then, too, it was hoped to use this as an opportunity for developing new techniques of high-level glacier study which could be added to and improved upon during the second season of field work in 1949.

It was decided that a party of seven would be ideal for the preliminary trip. In April additional personnel were chosen and the roster soon stood as follows: Miller was to coordinate the

glaciological and geological studies, and Latady the meteorological and photogrammetric work; W. Lawrence Miner, of the Stanford Graduate School, was to come along as assistant meteorologist and in charge of food analysis; Lowell Chamberlain, President of the Harvard Mountaineering Club, was asked to take on the job of ecologist and to handle the all-important task of equipment analysis; Melvin Marcus, a geology student at Yale University, acted as assistant geologist, glaciologist and field recorder. Anthony Thomas, of the U. S. Forest Service office in Juneau, was assigned as Forest Service observer. Donald Salt, a geophysicist from the National Research Council of Canada, was to carry on subsurface investigations with a seismograph, but unfortunately unsatisfactory functioning of the seismic equipment at the last minute precluded his participation in the 1948 field work.

Considerable support for this project was given by various outside agencies. The Committee on Geographical Exploration of the Research and Development Board, via the Army Air Forces, supplied air transportation for personnel and equipment and also made available meteorological equipment and aerial photographs. The U. S. Navy, through Medium Patrol Squadron Four, rendered valuable aerial support by dropping supplies, and also furnished special test items and aided with extensive glacier photography. The U. S. Forest Service, through the Juneau office of the Tongass National Forest, supplied surveying equipment, warehouse space, office facilities and transportation, and made personnel available to aid in the project. The Institute of Geographical Exploration at Harvard University loaned two fine SPF Forest Service type field radios. The Artic Institute of North America loaned parachutes and other equipment; the Plymouth Cordage Company supplied ropes; the Gus George Grocery in Juneau aided with warehouse space, rock-bottom food prices and gifts of miscellaneous supplies; Taku Lodge volunteered lodging, river transportation and radio services; the C.A.A. weather station in Juneau and the U. S. Weather Bureau gave valuable advice and handled radio communications. The Harvard Mountaineering Club loaned tents; the American Alpine Club supplied meteorological equipment and gave the project a grant for field expenses, as also did Pan American Airlines and, of course, the American Geographical Society. Cameras and film were made available by the Harmon Foundation.

Through the fine cooperation of the Joint Research and Development Board, William Latady arrived at Juneau on August 24th in a B-25 aircraft from Bolling Field, Washington, D. C. With Latady was a quantity of meteorological equipment loaned to the expedition by the U. S. Army. Marcus landed in Juneau on the same day, having come by steamer from Seattle. The remaining members of the group were to arrive on the 28th, so Latady and Marcus went by local aircraft to Taku Lodge on the Taku River for two days of observation on the Hole-in-Wall Glacier, which flows from the Juneau Ice Field. Several stations of the 1946 survey were re-occupied with a camera for photogrammetric purposes. By the 29th all members of the party were in Juneau, Miner and Chamberlain having arrived by steamer from the south and Miller having flown in from Yakutat, where he had been spending several months with the Artic Institute expedition doing high-level glacier studies on the Seward Glacier. During the following two days all hands turned-to to pack supplies and equipment for aerial delivery on the ice field. Unlike most previous Alaskan expeditions, which usually shipped quantities of food and equipment in from the United States, this group purchased a high percentage of these items locally, with astonishingly little difference in price.

On September 1st Latady and Miller were picked up by a Navy bomber from the VPML4 and flown to Annette Island near Ketchikan. Here for two days a conference was held with Commander Pollack, Commanding Officer of the Navy Photo Squadron, which was mapping Southeastern Alaska, in order to review the special pictures of the glaciers this Squadron had been able to take in the Juneau area during the summer. Useful photographs and data were obtained to supplement the fine collection previously provided by the Aeronautical Chart Service in Washington, D. C. In the meantime, Chamberlain, Marcus and Miner had made a preliminary flight across Juneau Ice Field to view potential campsites and had landed at Taku Lodge, which was to be the base of operations. They then went up the Taku River by boat and entered Twin Glacier Lake, from which they climbed to the edge of the "Ice Cap."

Latady and Miller returned to Juneau on September 4th and that evening completed preparation of supplies and equipment to be delivered by air to the ice field camps. This was accomplished in the Forest Service warehouse and with the aid of a government

truck generously loaned by the Regional Director. On the 5th, Commander Pollack, with one of the Photo Squadron aircraft, dropped 1500 pounds of supplies and equipment at three selected localities on the névé of the upper Twin and Taku Glaciers. Owing to bad weather, the advance party had not yet reached the 4000-foot level at which the bulk of these supplies was dropped; however, no serious consequences resulted because the loads were found several days later. After this flight, the Navy plane returned Miller and Latady to Juneau and then flew back to Annette Island. These two, together with Thomas, then flew to Taku Lodge and that evening made radio contact with the advance party on the upper Twin Glacier ridge.

Incredibly bad weather prevented any activity on the 6th; however, on the 7th the party from Taku Lodge went to the base of Twin Glaciers and started the ascent to the ice field. This group used a more practical route than the advance party and could have reached the ice field easily within one day if bad rains had not slowed down travel. This necessitated the establishment of a camp at timberline near the 2000-foot elevation. Radio contact during this interval was unsuccessful because batteries at the high camp had been saturated by rains. On September 9th, however, the two groups joined forces at what was to be known as Camp Three, at 4250 feet on the upper Twin Glacier névé.

During the next few days, in spite of blizzard conditions, Camp Four was consolidated at the base of a large snow bowl nearer the center of the ice field, and final plans for field work were laid. On the 11th the Navy plane came in to check on progress of the ground party, and radio contact was established in a fog both with VHF and with low-frequency (SPF) radio telephones. Weather data were being radioed each morning and evening to the weather station in Juneau.

On the 12th the geological and glaciological field studies were initiated, and the establishment of a network of control stations begun. A ramification of the program of research and reconnaissance was continued during the following two weeks until September 24th when blizzard snows forced the evacuation of the high camps. Geological observations were made in 13 different areas, and seven photogrammetric stations and six plane table triangulation stations were established. In addition, three all-day reconnaissance

journeys were achieved to study distant areas and morphological features. On one of these, another camp was established on the northeast branch of the Taku Glacier, ten miles from the edge of the ice field, where two weeks' supplies and food had been dropped by the aircraft and were effectively cached for use in a later season. Each of these trips was made on skis and gave opportunity for ecological collections of arctic-alpine flora both on nunataks within the ice field and on rock ridges at the periphery.

Accurate meteorological readings were made each morning, noon and evening, and careful records kept of the ablation and accumulation of snow on the névé surface during this transition period. An insoluble lead oxide dye was scattered on the névé at Camps Three and Four to give a reliable horizon representing the position of the 1948 late summer snow surface. A network of 15-foot movement stakes was also set up, both at the ice field camps and on the upper East and West Twin Glaciers. The location of each was accurately established by means of plane table intersection. These will be checked in 1949 as a means of determining rates of annual flow. In addition, field studies were made of the Forbes bands on East Twin Glacier and of other structural and geomorphic features in the vicinity. The highest position of the late summer firn line was also recorded at key locations, and a suitable place for next year's seismic study was decided upon.

During the days of bad weather when visibility was reduced to zero and field work was impossible, members of the party wrote up reports and concentrated on analyses of the equipment and food on hand. Also at these times, the aerial photographs were studied and routes and camps for the 1949 program discussed.

During the last five days at the upper Twin Glacier Camps the party experienced bad weather which brought 50-mile-an-hour winds and 30 inches of new snow, indicating that at that altitude the Alaskan winter had set in. The bulk of equipment and unused food was "winterized" by placing it inside a collapsed tent covered with a second tent and three parachutes. All was lashed down with rope and held to the ground by the weight of six pairs of skis and a large hand-drawn sledge. The location of this cache was marked with three 15- to 18-foot poles, each guyed by ropes and marked with flags. In a driving blizzard the party left the Juneau Ice Field on September 24th and descended in eight hours to Twin Glacier

CREVASSE ON JUNEAU ICE FIELD

FORBES BANDS ON EAST TWIN GLACIER
Twin Glacier Lake in distance
Photos, W. R. Latady and M. M. Miller

Lake, from which they were flown back to Juneau the next day on a chartered float plane which had been summoned by radio.

In spite of many adversities and a necessarily short period in the field, all hands felt satisfied that the preliminary study and reconnaissance had been successful and that ample information had been gained for planning the details of the intensive investigation to be undertaken in 1949.

12. MOUNTAIN WEATHER OBSERVATIONS, 1948

WELDON F. HEALD, *Director*

In World War II it was found that actual climate statistics were non-existent for high altitudes in most of the mountain ranges in the world. The lack of exact knowledge of conditions encountered, such as amounts of rain, snow, clouds, winds, etc., was a handicap in equipping troops and planning military operations in mountainous regions.

The trustees of the American Alpine Club Research Fund feel that the need for more precise knowledge of weather conditions in high mountains is as important in time of peace as in war. High mountain climate data could be of great value to explorers, climbers, skiers and travellers, and the five trustees of the Fund hope that their fellow Club members will be interested in cooperating with them in their promotion of the program initiated this season by Weldon F. Heald.

With only limited time and funds available, last spring, extensive operations were impossible, but four observers were in the field, three in the Sierra Nevada, California, and one on the Juneau Ice Field, Alaska. Reports have been received from the following:

1. Richard M. Leonard. Temperature, and rainfall records for two weeks in July, at 4000 to 10,500 feet elevation in northern Yosemite National Park, California.

2. Oliver Kehrlein (observations taken by Larry Lewan and Wesley M. Noble). Temperature, rainfall, cloudiness and wind at Vidette Meadows, 9650 feet, King Canyon National Park, 20 July—14 August 1948.

3. David R. Brower. The month of July, King Canyon National Park, 4000 to 11,000 feet. Complete report not yet received.

"HORN PEAKS" ABOVE EAST TWIN GLACIER

DEVIL'S PAW (8584 FT.) AND UPPER TWIN GLACIER

Photos, W. R. Latady and M. M. Miller

4. William R. Latady and Maynard M. Miller. Climatological Summary, Juneau Ice Field Research Project, 1948. Station: Juneau Ice Field above Twin Glaciers, 4250 feet. Summary includes temperature maximum and minimum, wet and dry bulb readings at 0800 and 1800, wind velocity and direction, percentage overcast, visibility in miles, barometric pressure in inches and milobars, snow precipitation in inches of snow, cloud formations and remarks.

Recording thermometers, portable rain gauges, sling psychrometers, record forms and instructions are furnished to voluntary observers, and any member contemplating high mountain trips during the coming year is asked to get in touch with the Director of Mountain Weather Observations, Weldon F. Heald, Flying "H" Ranch, Hereford, Arizona.

Permanent high altitude weather stations are particularly desirable. We hope within the near future to have well-equipped stations at Mount Evans, Colorado, 14,259 feet; Echo Lake, Colorado, 10,605 feet; and eventually White Mountain Peak, California, elevation 14,242 feet. Any suggestions as to the possibilities of other sites and locations will be given serious consideration.

PROCEEDINGS OF THE CLUB

The Library of the American Alpine Club

HELEN I. BUCK

In the April 1948 issue of our *Journal* you will find a brief description of the new quarters for the American Alpine Club. The purpose of this article is to tell you particularly about the organization and resources of our Library.

Since 1929, when our alpine collection was removed from the New York Public Library and deposited in our own rooms for the first time, our books and unbound material have always been classified into five main divisions: geographical, non-geographical, periodicals, reference books, and duplicates.

In many cases a book may be classified as appropriately under one subject heading as another, but in general the books which refer to a certain region will be found grouped under that geographical heading. The geographical group, which occupies the stacks in the center of the Library, is arranged under main headings—North America, South America, Europe, Asia, Africa, Arctic, Antarctic, and so forth. The shelves of these cases are clearly labelled to indicate subdivisions (*e.g.,* countries and mountain ranges) and subject headings, such as Guidebooks, Mountaineering-General, Travel and Voyages.

The non-geographical books occupy a section of bookcases along the walls of the Library. The labelled shelves in this group indicate such topics as Art, Biography, Literature, Fiction, Poetry, Music, Skiing, Science, Flora, Glaciers, Geology, Mountain Craft, Natural History and Volcanoes.

Among these two groups you will find many volumes which contain hundreds of magazine articles, brochures and reprints. A table of contents has been inserted in each of these volumes, the articles numbered and catalogued temporarily. These volumes contain much material not found elsewhere in the Library and have proved to be very useful.

Oversize books of each group are placed on the lowest shelf of its proper case or in the folio case, which contains many unusually large and fascinating volumes. An asterisk on the catalogue card indicates the former; "Folio Case," the latter.

A special case, under lock and key, contains rare books, some published in the sixteenth, seventeenth and eighteenth centuries. In the card catalogue, the special case is so designated.

Bound volumes of the periodicals are in the open and sectional bookcases along another part of the walls. They have been grouped geographically as far as the cases permit. To facilitate their location, the cases have been numbered, and any journal can be located easily by consulting the card catalogue or the list on the reading table; for example, "The Sierra Club Bulletin, Case 2."

The reference books include bibliographies, catalogues and dictionaries, which are kept in the office for ready reference by the Librarian. Atlases are kept in the Folio Case.

Duplicate books of special interest are kept in reserve in cases in the office. These include first editions, books with original bindings, autographed copies, and books with enclosures of letters. There is also in the office a small lending library of duplicate standard books. All these duplicate books are catalogued separately from those of the main library.

The A.A.C. bookplate adorns the inside cover of all books. On it appear the name of the donor and the year of accession. Many books have other bookplates of interesting design, some from the libraries of famous mountaineers. These are gradually being listed, as there have been numerous inquiries about bookplates of alpine climbers.

The most recent acquisitions are to be found in a book trough on one of the long tables. The Club is deeply indebted to one of its members for establishing a Library Fund, the income of which is to be used for the immediate purchase of new publications. Hitherto, we have received, directly or indirectly, most of our books from the estates of deceased members—Benjamin F. Seaver, Val A. Fynn, Henry F. Montagnier, Henry G. Bryant, Winthrop B. Greene, Henry B. de Villiers-Schwab, Rev. Harry P. Nichols, Rev. J. Gresham Machen, Judge Harrington Putnam, Dr. Andrew J. Gilmour and Howard Palmer. There have also been contributions by present members—many hundreds by Dr. J. Monroe Thorington.

The card catalogue of the Library proper includes three groups: the main catalogue, the shelf list and the subject catalogue. On the bottom of each card is stated the shelf location.

The main catalogue is by author, compiler or editor and includes all bound volumes in the Library. It also contains the titles of a few anonymous books and some distinctive titles, such as *Five Miles High, High Conquest* and *Mountain Craft.* On the reverse side of these cards are found titles for cross-references. These same cross-references are also written in each book, with the shelf location.

The shelf list is a record of the books in each group as they stand on the shelves. It is essential in taking an inventory and checking for lost books.

The subject catalogue includes the geographical and non-geographical subjects already mentioned and innumerable others such as Alpine Calendars, Clubs, Congresses, Diaries, Equipment, History, Humor, Letters, Manuscripts, Panoramas, Photographs, Photostats, Portraits . . . even Games. (Have you ever played our rare and unique game of Mont Blanc? You would enjoy it.) Some of the references in our subject list may seem trivial, but the Librarian has had recourse to every one of them at one time or another. One never knows what bit of information will be requested.

In 1935, when I visited various European Alpine Club Libraries, I was much amused to find that the last title in the subject list of the Alpine Club Library was Women in Mountaineering. At that time the references were very few in number. We are trying to do justice to this important subject—as we hope they are!

No system of numbering has been adopted as the present arrangement furnishes a quick and easy method for locating books. Books are generally in alphabetical order in each group according to author, compiler or editor, except for a few anonymous books, arranged by title, and biographies. The latter, as in most libraries, are in the alphabetical order of the name of the person about whom the biography is written.

The only number which appears on the cards is the accession number. It is used on only the author and shelf cards. It simply indicates when the book was added to the Library. For example, "104" was the 104th book added to the Library and was so recorded in the accession book, which is a complete record of bound volumes, showing author, title, publisher, place of publication, donor and date

of accession. This accession number is also written on the back of the title page of each book. It has nothing to do with shelf location.

Unbound pamphlets and monthly bulletins are always a problem. We never seem to have enough space for them. The latter are kept in labelled pamphlet boxes, as are also miscellaneous odd magazines and booklets. Other unbound materials, magazines and reprints are classified by subject and kept in alphabetical order by authors in their respective groups in a filing case in the office; they are catalogued in the same manner as the books.

The Library also contains large cases of mounted and unmounted photographs, fine prints and maps; many boxes of slides (still to be catalogued); exhibit cases filled with souvenirs from the Alps and Canadian Rockies, a beautiful glass window from a church in Lucerne dated 1684, summit stones, records of first ascents, coins and medals—all forming the basis for an interesting alpine museum. Then there are large reliefs of the Canadian Rockies, a relief of K2, the rare Troye reliefs of Mont Blanc, Mont Cenis, and the Simplon, and Beck's relief of Switzerland. These reliefs are one of the most popular attractions of the Library. There are also many framed photographs, watercolors, oils, pastels and historical documents; scrapbooks covering a period of 50-odd years of alpine clippings, cartoons and pictures; a mountain stamp collection; alpenstocks and ice-axes hung in chronological order; lanterns and screen for slides and movies.

With such a wealth of material, the A.A.C. has good reason to be proud of its Library and club rooms. We are indeed grateful to Dr. Ladd for making it possible to display our possessions as never before. As yet many of our members have had no opportunity to see their new club quarters, although a few from the Far West have been able to spend some happy hours with us. We want all of you to come as soon as you can. A cordial welcome awaits you from the New York members.

IN MEMORIAM

HENRY SHERMAN ADAMS
1864-1948

Henry S. Adams, one of the very early members of the American Alpine Club (elected in 1909), died last summer at the age of 84, at Hammonasset, Conn., of a heart attack suffered while he was in swimming.

Born in Wethersfield, Conn., on 1 August 1864, the son of Thomas Griswold Adams and Lucy Stillman Dickinson Adams—both of old New England stock—Mr. Adams was nationally known as editor of *The Spur,* a magazine devoted to riding and driving. The circulation of *The Spur* in those days was outstanding. Mr. Adams never missed an opportunity to bring into its columns one article after another related to the mountains or to climbing, and was thus indirectly responsible, without doubt, for arousing interest in many who today are climbing.

His climbing record was not great—Chamonix 60 years ago, Mounts Stephen and Lefroy in 1903—but his interest in the development of climbing never flagged. By his death the Club loses one more of the pioneers to whom today's wide interest in climbing in America is due.

J. E. F.

GEORGE MARSTON WEED
1864-1948

Half a century ago George Weed was one of the most active members of the Appalachian Club. His introduction to the Canadian Rockies he owed to C. S. Thompson. In his first season, 1898, he made the first ascent of Mount Balfour, and three years later added Eiffel, Chancellor and three of the Ten Peaks to his new climbs. In 1902 he was invited to join Norman Collie's party, which gained important summits along the North Saskatchewan, including Murchison, Howse, Freshfield and Forbes. "The Englishmen were most delightful companions from start to finish," he wrote to Thompson;

"it suited Collie to travel leisurely and to enjoy without too much strenuousness the beauties of the mountains."

Earlier in 1902 Weed joined the American Alpine Club as an original member, and he was often present at the annual meetings. His subsequent mountaineering was limited, but in 1930 (when he was 66) he and his delightful brother, Judge Alonzo Weed, rode from Lake Louise to the Maligne Lake camp of the Alpine Club of Canada, on the way making a sturdy attempt in stormy weather to secure the first ascent of Mount Weed.

George Marston Weed was born at Bangor, Me., on 14 September 1864, the son of Alonzo Shaw and Esther Ann (Marston) Weed. Graduating from Harvard in 1886, he took his LL.B. at Boston University and was admitted to the Massachusetts bar in 1890. He married Lilla (Atwater) Calhoun in 1903. He died on 30 January 1948, and the Club has lost one of its last original members, a modest sportsman of great charm whose pioneer work in Canada is remembered in the peak that bears his name.*

J. M. T.

FRANK N. WATERMAN
1865-1948

By the death of Frank N. Waterman on 19 January 1948, the city of Summit, N. J., lost one of its most prominent and honored citizens, for he had been a resident there for almost half a century and during the early years took a leading part in the educational and cultural activities of the community, while, daily, he joined the commuter throng bewteen Summit and New York City, where he maintained a business office for many years.

He was born at Toledo, Ohio, on 30 October 1865. After graduating from the New Britain High School, he entered Sheffield Scientific School of Yale University, but later transferred to Cornell University where he graduated in Electrical Engineering in 1886. Some years later he took his Master of Science degree at the Brooklyn Polytechnic Institute. He was an outstanding student in all his scientific studies, but while at Yale found time to play a good deal of football; and, after the transfer to Cornell, he organized and coached its first varsity football team. It was doubtless this early vigorous athletic exercise that gave him the strength and stamina he needed for his mountaineering campaigns.

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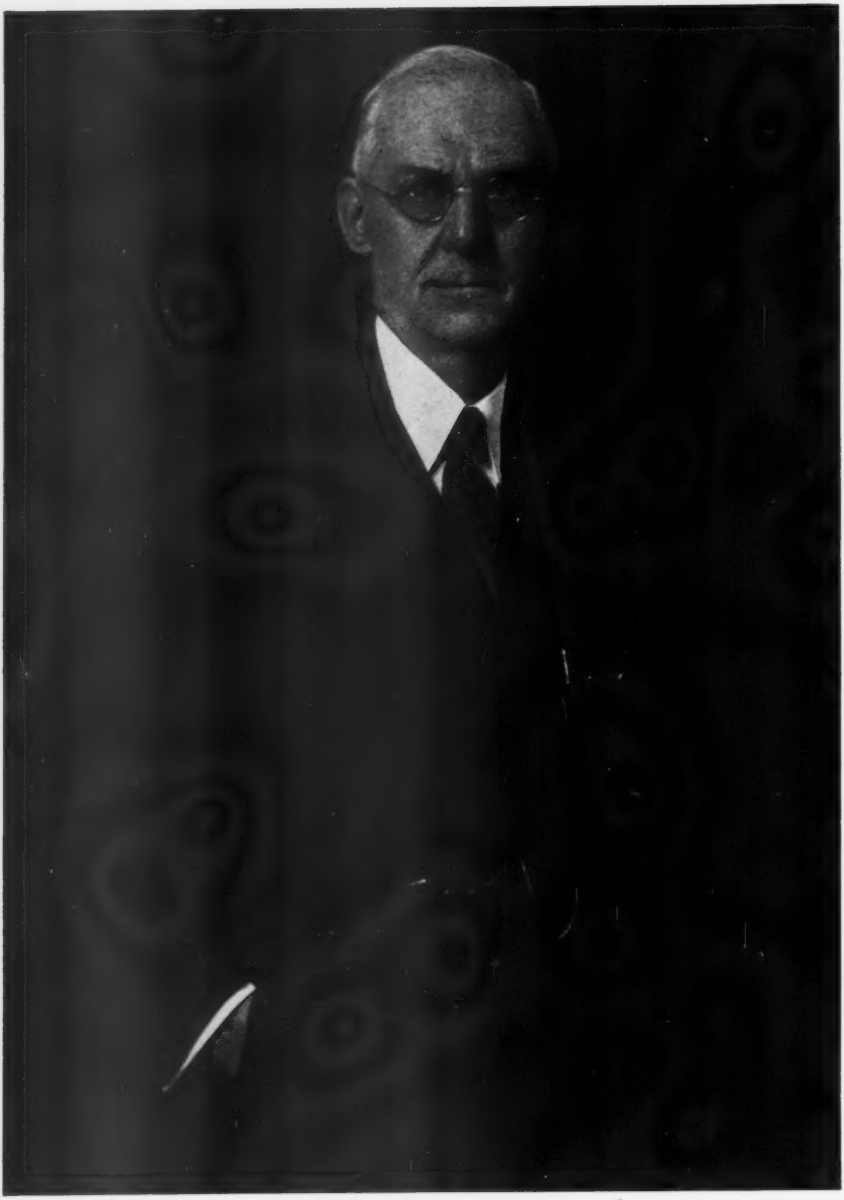
* The photograph opposite is by Walter K. Shaw.—*Ed.*

GEORGE MARSTON WEED



FRANK N. WATERMAN

Soon after finishing at Cornell, he joined the staff of the Westinghouse Electrical and Manufacturing Company, and for several years was employed by them in the development of electric street railway systems in this country as well as in Italy and Hungary. After this work, he opened his office in New York City as a consulting engineer and later began specializing in electrical and mechanical patents and their infringements, in which he soon established himself as an expert authority. He handled patent application and infringement cases for many electrical and radio corporations up until the time of his retirement from active practice in 1939. Some of his long standing clients were the Gillette Safety Razor Company, Westinghouse Electric Company and General Electric Company; and he was consultant for the Radio Corporation of America. Perhaps his biggest case was when he acted for the Westinghouse Company in the purchase from Nikola Tesla of the polyphase patent which made possible the manufacture of alternating current electric motors and for which the inventor was paid one million dollars. He was the author of many papers on subjects in his field and a member of the American Institute of Electrical Engineers, the Institute of Radio Engineers, the American Physical Society and the Society of Automotive Engineers.

With all his social and business activities, he still found time for an annual vacation in the mountains. Indeed, when Waterman departed on his final climb to his "Elysian Fields," the mountaineering world lost one of its most enthusiastic and capable alpine devotees. He was an active member of the Appalachian Mountain Club, the Green Mountain Club, the Alpine Club of Canada and the American Alpine Club; and his mountaineering record shows 65 notable peaks climbed in the United States, Canada and the Swiss Alps.

His presence in camp, on the trail and on the mountainside always brought cheer to his companions for he was true to his declared philosophy that "Mountaineering is a sport undertaken for the pure joy of conquest, for the uplift of the soul and the high reward which it brings in inspiration and as a mental and physical stimulant." Upon reaching the mountains, he not only felt and lived that philosophy, but radiated it to his companions. I know that upon several memorable climbs I was privileged to take with him all members of our party felt that "joy of conquest" with him.

During all the years of my association with Frank in the Canadian Rockies—beginning, I believe, when Mrs. MacCarthy and I induced him in 1917 to attend his first Canadian Alpine Club camp (pitched in Cataract Brook Valley, where he made his qualifying climb on Odaray), and continuing to his last camp in 1938 at the Columbia Ice Fields—upon reaching the mountains, he seemed at once to cast off all thought and connection with his work-a-day world and become absorbed in his alpine surroundings. The only exception that I remember during all those 21 years was once when members at the campfire became confused in their discussion of the troubles encountered with radio reception in mountainous areas. Frank's thoughts of the high hills were momentarily drawn back to our mundane problems; and, in simple language, he quickly gave us a very clear mental picture of the workings of radio waves and the barriers that occasionally are thrown up against them by the earth's rugged crust—all of which, he declared, was simply another example of nature's challenge to man's genius and efforts to mold the earth and the world to his own convenience and comfort.

Some years later, on a memorable climb with Waterman, Gilmore and Wakefield, our party beheld a tragic demonstration of the unending struggle going on about us between all forms of life and activity and the hampering and destructive forces of nature. We had enjoyed the thrill of a rather exciting traverse of Terrapin, and then a more spectacular and hazardous climb up the Golden Stairs on the back side of Magog, and a final hurried ascent to a small shelter at the summit ridge to screen ourselves from a violent sleet and hailstorm. We arrived there just in time to witness a brilliant flash of lightning: a bolt struck in the center of a magnificent stand of timber not far from the Assiniboine camp, and in a few minutes that beautiful grove was completely destroyed by the hot, greedy flames. Thus was demonstrated the truth of Frank's remark that "Nature is inexorable and inexplicable."

Frank Waterman has gone to his final rest; but, unlike the giant trees of the forest, which left no trace of their existence, he leaves behind many recollections of his pleasant smile and hearty laugh, which long will remain in the minds of his many friends, and a record of achievement for the advance of mankind that will endure through the years.

A. H. MacC.

FRANCOIS EMILE MATTHES
1874-1948

Mountain climbing was for François Matthes all in the day's work. Yet he enjoyed this, as he did every process by which he enriched his knowledge of the earth's surface and the physical causes of its conditioning. He was tireless in the pursuit of knowledge, especially in the field of geophysical science. He well knew that this field was so vast and so varied that no one man in a lifetime could master it; nevertheless, undaunted, he set out to master as much of it as he could and to record his knowledge for the benefit of future generations. The amazing extent of his accomplishment was just beginning to be recognized when his career came to a close a few months ago.

François Emile Matthes was born in Amsterdam, Holland, on 16 March 1874; he died in El Cerrito, Calif., on 21 June 1948. His early education was in Holland, Switzerland and Germany. At the age of 17 he came to this country and entered the Massachusetts Institute of Technology, from which he received the degree of B.S. in 1895. The following year he became an American citizen and shortly afterwards began his work with the U. S. Geological Survey. In 1911 he married Edith Lovell Coyle, who survives him. Upon his retirement from the Geological Survey a year ago, Dr. and Mrs. Matthes came to California to live. In his home in the Berkeley hills, overlooking the Golden Gate, he hoped to continue his writing and editing and, especially, to complete a popular book on the geology of the Yosemite region. But arduous extra duties during the war years had sapped his strength, and the hope was to be unfulfilled. Shortly before he died, but in time for him to have a glow of satisfaction at receiving it, there came to him, accompanied by a gold medal, a citation from the Secretary of the Interior which reads as follows:

"Citation For Distinguished Service—Mr. François Emile Matthes, upon retirement after a career of 51 years in the service of the Government, characterized by outstanding professional and scientific contributions. From the outset of his career, Mr. Matthes was intensely interested in the problems of delineating the shape of surface features of the land by means of topographic contour lines and came to excel in this highly skilled and difficult art. Moreover, he became interested in the process by which these land forms

were fashioned. While progressing in the service as a skilled topographer, during which he mapped Glacier National Park, the Grand Canyon of the Colorado, Yosemite Valley, and Mount Rainier National Park, his interest in the processes of land formations increased and he annually presented papers before scientific societies on the glacial and other geologic features of the areas he was mapping. In 1913, having finally become one of the foremost topographers in this country, he decided to devote the remainder of his career to glacial geology. Accordingly, he became associate geologist in the Geological Survey. During this second period of his professional career, Mr. Matthes made many valuable and exceptionally well-written contributions to glacial geology and geomorphology and became recognized internationally as an outstanding glacial geologist. A bibliography of his published works includes nearly 100 items. Many of his publications deal with the glacial history of the country that he loves best, the Yosemite and high Sierras, but his writings embrace a variety of other subjects and regions. He has, for example, made important contributions to the development of the present system of national parks. As chairman of the committee on glaciers of the American Geophysical Union since 1931, he has led in the organization of cooperative studies and measurements of the modern glaciers in this country and elsewhere. He is also a leading student of the elusive record of pre-historic, post-Pleistocene fluctuations of climate. Most glacial geologists will probably select his paper on the geologic history of the Yosemite Valley as his most outstanding single contribution to our knowledge of how mountain glaciers of the past have made some of the most spectacular landscapes of today. Mr. Matthes was decorated Chevalier, Order of Leopold II (Belgium) in 1920. He is past president of the Geological Society of Washington and of the Association of American Geographers. He received the degree of LL.D. from the University of California in 1947. This distinguished career, during which Mr. Matthes contributed so outstandingly to scientific knowledge and the public service, deserves the highest commendation of the Department.—J. L. Krug, *Secretary of the Interior.*"

In addition to the societies mentioned in the citation, Dr. Matthes was a member of a number of others, among them the American Geophysical Union, the American Society of Civil Engineers, the California Academy of Sciences, the British Glaciological Society

and the American Geographical Society. He was an honorary member of the Club Alpin Français, a corresponding member of the Appalachian Mountain Club, an honorary member of the Mazamas and an honorary vice-president of the Sierra Club. In 1919 he was elected to membership in the American Alpine Club. His mountain ascents include a number of peaks in Glacier National Park, Mont., and two visits to the summit of Mount Rainier during the course of work in determining the altitude and in mapping the mountain.

So much for the bare record and the public acknowledgment of a distinguished career. For many men it would be sufficient. But for François Matthes it is entirely inadequate. For it leaves out the great enthusiasms of his life, the things that made it a rare privilege to be with him and listen to his discourse. He was always glowing with enthusiasm and always eager to impart it to others. The beauty of the earth, particularly of mountains, moved him deeply, for he saw all around him manifestations of the orderly processes of creation. No detail escaped him, whether of rock in place or of rock ground to glacial débris, whether of stupendous forms or of minute striae, whether of trees living or of their skeletal remains, whether of flowers or of birds or of conies and other lesser folk. He saw all things in order, and in order he saw beauty.

But François Matthes' greatest enthusiasm was a living one. This was his work with boys. In Scouting he perceived a corollary of the orderly course of Nature and Science applied to life at a stage responsive to teaching and direction. Not on the peaks of the Rockies, not on the summit of Rainier, not even on the granite domes of Yosemite, did he experience the greatest satisfactions of his mountain-climbing days; but on some lesser eminence, some remnant of an ancient range almost obliterated or some glaciated cirque-wall, where, surrounded by a dozen boys, he could point out the age-long history so clearly apparent to his practiced eye. The Silver Beaver of the Boy Scouts of America, awarded in 1931, for his service to boyhood, was his most prized honor.*

F. P. F.

EDWARD LISLE STRUTT
1874-1948

The unexpected death of Colonel E. L. Strutt at Edinburgh on 7 July 1948 deprives the American Alpine Club of a distinguished

* The photograph opposite page 204 is by Bachrach, Washington, D. C.—*Ed.*

honorary member, who edited the *Alpine Journal* from 1927 to 1937, succeeding Captain Farrar, and served as President of the Alpine Club from 1935 to 1938.

Born in 1874, he was educated at Christ Church, Oxford, and Innsbruck University. His holidays were given over to climbing, and he joined the Alpine Club at the age of 21. He was also a member of Sektion Bernina of the Swiss Alpine Club.

During the Boer War Strutt served with the Royal Scots, 1900-02 (dispatches, Queen's Medal and four clasps, King's Medal and two clasps). In the years thereafter, his climbs in eastern Switzerland gave rise to *The Alps of the Bernina* (Part II, from the Muretto to the Bernina Pass, in the Conway and Coolidge series of climbers' guides, 1910). He married Florence Nina Hollond in 1905.

In the period 1916-17 he was Field-Marshal Milne's principal liaison officer with French headquarters at Salonika, and for his services in the war received many decorations and honors (D.S.O., 1917; C.B.E., 1919). In March 1919, as an officer of the Allied Council in Vienna, he escorted the Austrian Imperial Family to safety in Switzerland. In 1920 he became High Commissioner at Danzig.

On the Mount Everest expedition of 1922 he was second in command to General Bruce. His last visit to Switzerland was in May 1946, when he addressed a gathering of mountaineers at Zürich. His mountaineering career exerted a great influence upon international circles and his friendship will be well remembered.

J. M. T.

MORRISON PARSONS BRIDGLAND
1878-1948

Morrison Parsons Bridgland was a Canadian surveyor and a lover of mountains who had been a member of the American Alpine Club since 1903. A full account of his climbing is given in our *Annals*.[1] He was born at Fairbanks, Ontario, on 20 December 1878, and died in Toronto on 15 January 1948.

After graduation from the University of Toronto and a year in the School of Practical Science, he went west as assistant to the late A. O. Wheeler. In 1910 he was placed in charge of the triangu-

[1] *A.A.J.*, VI (1947), 345-8.

FRANÇOIS MATTHES

lation surveys in the Railway Belt of British Columbia and was almost continuously engaged in mountain assignments until 1931, when work on the Interprovincial Boundary Survey was terminated.

He came to the early camps of the Alpine Club of Canada with a great experience of the local mountains and was in charge of the climbing for a number of years, giving much painstaking work to the education of young mountaineers.

He was the author of an authoritative treatise on photographic surveying, and produced with E. Deville the *Description and Guide of Jasper Park*, based largely on his field work of 1915. He was an original member of the Alpine Club of Canada, and its vice-president from 1908 to 1911. A fine peak north of Yellowhead Pass, visible from the railroad, worthily bears his name.

J. M. T.

ROLLIN THOMAS CHAMBERLIN
1881-1948

When Professor Chamberlin was a student in Switzerland in 1900 he made his first ascent, the Titlis, alone. In 1939 he climbed Hungabee, a difficult peak of the Canadian Rockies. These are the boundaries of the mountaineering career of one of America's most distinguished geologists. One would like to present the climbing record in more detail, but several highlights must suffice: Orizaba in 1906, when A. P. Coleman and H. F. Reid accompanied him after the sessions of the International Geological Congress; the summer of 1921 when he ascended major peaks of the Pennine Alps; the seasons of 1924 and 1927 when he and Allen Carpé gained the highest summits of the Cariboos.

Rollin Thomas Chamberlin was born in Beloit, Wis., on 20 October 1881, and died in Chicago on 6 March 1948. He was the son of Thomas Chrowder Chamberlin, and took his name from him as well as from Rollin Salisbury, both of whom held the chair of geology at the University of Chicago. Thus his future career was well augured. He studied at the Universities of Geneva and Zürich in 1899-1900. He received the degree of B.S. at the University of Chicago in 1903, of Ph.D. in 1907, and of Sc.D. from Beloit College in 1929. In 1922 he married Dorothy Ingalls Smith.

Chamberlin served in the U. S. Geological Survey, 1907-08, and

ROLLIN THOMAS CHAMBERLIN
Photo, Underwood and Underwood

was a member of the University of Chicago's Oriental Educational Investigation Commission to China in 1909. He became research associate at the University of Chicago, 1909-11, and investigated the iron resources of Brazil, 1911-12. From an instructorship in geology, 1912, he rose to the professorship at the university in 1923. In 1920 he took part in the Carnegie Institute expedition to Samoa, and for 20 years he edited the *Journal of Geology*. His research in the prevention of coal dust explosions in mines led to his devising of the now widely accepted stone dust method. He was a member of the National Academy of Science, the British Association for the Advancement of Science, the American Geophysical Union and the Seismological Society of America; and he was vice-chairman of the division of geology and geography, National Research Council, 1922-23.

Chamberlin joined the American Alpine Club in 1921 and recently presented to it the gigantic ice-axe used by Professor Salisbury during the Peary Relief Expedition of 1895. The structure and motion of glaciers was naturally of absorbing interest, as is shown by his frequent contributions on this subject to our *Journal* and other publications.[1]

J. M. T.

[1] See, for example, "The Ascent of Orizaba," *A.A.J.*, I (1930), 160 ff., and "Glacier Mechanics," *A.A.J.*, IV (1940), 41 ff.

BOOK REVIEWS

Mount Everest: 1938, by H. W. Tilman. 8vo., 160 pp., 48 illustrations and 4 maps. New York, 1948: The Macmillan Co. Price, $3.75.

The great record of the 1924 Everest Expedition tends so to dwarf the accomplishments of subsequent parties that to reach any point short of the summit has come, most unfairly, to be considered failure. But to reach 27,000 feet on any mountain, not once but twice, and to bring back a party unhurt, is a good piece of work, which Mr. Tilman reports with modesty and humor. There are now ten books about seven expeditions to Everest, each quite different, constituting an extraordinary account of an immense struggle between man and nature.

I always enjoy Mr. Tilman's style. He uses a dry wit with skill and restraint, and he inserts with precision and appropriateness a great number of quotations from a wide variety of sources. Though he shrinks from drama and suspense, there is nevertheless a continuing interest in the story he unfolds, even though the old Everest reader may know every step of the route described.

Much of this small volume is devoted to the issue of small versus large expeditions, a theme dear to the author's heart. Though in sympathy with the principle of small, lightly equipped parties, I can say from personal experience that Mr. Tilman sometimes carries "bagging and scrapping" too far. I should also question his denial (on page 18) that he enjoys living on mushrooms, bamboo shoots and fresh air: he has been heard to condemn a simple sugar candy as being "all chemicals," and one wonders that he consents to breathe even the thin air of Camp Seven, made up as it is of fundamental chemicals.

Some of the author's remarks are so pointed, his jibes so accurate, that one is relieved to know that his companions have remained his friends; some of his scapegoats are given a chance at rebuttal in the several appendices. The ten years intervening between the climb and the report have not resolved any of the major issues raised in this and other Everest accounts, nor are these issues likely to be settled for some time to come. We do know now that man can live for some time at 29,000 feet, but we do not know how much

he can do while there. If standing on the summit were the sole objective of an Everest expedition, we know that a man could be dropped there from a plane (probably after some casualties), and airborne supply is much more feasible now than ten years ago. Oxygen equipment, too, is cheaper and lighter. Many climbers of today would agree with Mr. Tilman that the small party is more effective and more fun than the large one; fewer would be able to draw his sharp line between those aids which are permissible (boots, axes, stoves) and those which are not (oxygen, planes).

The day-by-day story of the climb, rather than any new information, makes this book an engrossing, well-written, and important portion of the growing saga of Everest.

CHARLES S. HOUSTON

The Unknown Mountain, by Don Munday. 8vo., 268 pp., photographs and map. London, 1948: Hodder and Stoughton, Ltd. Price, 21/-.

The story of the exploration of the Mount Waddington area of the British Columbia Coast range has long called for a book; and it is fitting that it should be written by the one man who, with his wife, was responsible for opening up this important and interesting region to mountaineers. This book is a personal narrative of the Mundays' many journeys into the Coast Range, starting with Butte Inlet on their first venture, then the intensive exploration of the glaciers and peaks of the Franklin Valley, the eastern approach to Mount Waddington on Henry Hall's expedition from Williams Lake, and finally their journeys into the practically unknown Klina-Klina valley a short distance to the north. The story of their efforts is honestly and effectively told. Climbers who have shared their experiences with Coast Range weather, topography and vegetation will appreciate the accuracy and straightforwardness of the narrative.

From the standpoint of mountain exploration, the gradual unfolding of this mountain system under the painstaking and ceaseless efforts of the Mundays, the slow building up of the true picture from many fragments, is a fascinating tale in itself. Rarely has it fallen to the lot of two people to carry through the exploration of a large and complex mountain range and to present it as a vivid and dramatic personal history.

Although the point is covered in the Preface, one feels that the story might have been more complete had the efforts of other parties in this region been given more than casual mention. While all the expeditions other than the Mundays' were primarily mountaineering trips with the sole aim of climbing the main summit of Mount Waddington, these still have their place in the story of the exploration of the area—especially since it was Mount Waddington itself which first attracted the Mundays, and since seeking practical approaches and finally making several attempts remained major aims in the Mundays' many visits to the region. One feels that the climbing parties which followed in the Munday's footsteps are dismissed as intruders, although not a one of them would fail to acknowledge its debt to the real pioneers.

All in all, as a story of one of the outstanding mountain explorations of recent times, this book ranks as an important one and a real addition to mountain literature.

WILLIAM P. HOUSE

Rocky Mountains, by Frank S. Smythe. 4to., 149 pp., 64 photographic plates, 16 in color. London, 1948: A. & C. Black. Price, 30/-.

Mr. Smythe has, I think, produced 24 books about mountains and climbing in the last 19 years, including eight quarto albums of photographs with a little text, of which this is one. It covers the Canadian Rockies from Assiniboine to Robson. The introduction is a condensed description of the region for the benefit chiefly of newcomers who wish to climb, to travel off the beaten path, and to photograph, with advice as to methods. The paragraphs opposite each picture vary in character. Some are simply descriptive, others concern photographic technique, and others tell briefly of the climb during which the picture was taken. Brief as the text is, it is not perfunctory. Mr. Smythe's facility in writing makes it interesting, and his wide experience gives it the presumption of authority.

Although I did not read this semi-popular text with a critical chip on my shoulder, I noted a few infelicities, and there may be more. The description of what is going on in Plate 31 leaves me confused. Referring to page 98, I suggest that Hungabee, not Assiniboine, is "The Chief." Hodge says the latter means "those who cook with stones."

I shall not attempt to discuss the photographs from a technical

or artistic point of view. I liked best, of the monochromes, those of the Victoria ridge, some of which appeared in the *National Geographic;* also those of Mount Brussels and Lake McArthur; and, of the color plates, those in which the golden September aspens turn the landscape into fairyland. I liked least the sad travesty on the beauty of Lake O'Hara. However, I must comment on the monochrome reproduction, which is probably a serious disappointment to the author. Photographs which were doubtless very satisfying in gradation and texture have been turned into "soot and whitewash," very likely because of financial stringency in England. One has but to compare this with one of his pre-war albums, *A Camera in the Hills,* for instance, to see what this one might have been. On the other hand, oddly enough, the Kodachromes seem to have fared better. As far as I can judge by comparing them with my own color slides of the same region, they have reproduced well, and they go far toward redeeming an otherwise slightly disappointing book. Those who love these mountains, about which few books have appeared in recent years, will wish to own this, in spite of its shortcomings and its excessive cost. I have already got much pleasure from it.

NATHANIEL L. GOODRICH

Again Switzerland, by Frank S. Smythe. 8vo., 248 pp., 33 illustrations and a map. London, 1947: Hodder and Stoughton, Ltd. Price, 20/-.

Mr. Smythe has written a book describing his first trip to Switzerland, after the enforced absence of the seven long war years. He went over in February of 1946, one of the first of the British to revisit Switzerland, for a skiing holiday at Adelboden, in the Lötschenthal, at Verbiers and Zermatt. The names of the runs he made and the mountains he climbed are almost household words; he makes us see again the powder snow—yes, the wind-slab and crust, too—and feel the crisp air and glowing sun. We also see the inns, the inn-keepers, and the other people almost as if we were there.

Toward the end of his stay, in late March, he did some ski-mountaineering; he climbed the Breithorn, followed the Haute Route, and made a solitary traverse of the Oberland. There are no tours de force here; in fact, it is perhaps not a very impressive list of achievements for a man of Mr. Smythe's caliber, and experience

in the Himalaya and elsewhere. With the exception of his trip alone across the Oberland glaciers, thousands of ski-mountaineers could make, and indeed have made, similar expeditions. We suspect that only the times persuaded Mr. Smythe to write a book on such slight material. But the fact that it deals with the familiar and well-loved scenes of Switzerland, and with climbing experiences more or less within the common reach, does not detract from the charm and allurement of his book. For Mr. Smythe's style is very vivid, and he writes with such an immense quantity of detail—those little well-known details that had perhaps dropped out of mind until he recalls them so explicitly—that Switzerland is revivified for us. I, for one, find nearly unbearable the longing that he arouses in me to get back to Switzerland myself. Shall I say, "Don't read this book unless you are able to go to Switzerland in the very near future—it will just make you homesick"?

Of course, the illustrations are excellent, as might be expected, and I wish there were some way we could see more of the pictures he took.

As a final word, let me say that I think it a fine thing for a man of Smythe's standing to come forward in both word and deed in favor of solitary mountaineering in its proper place, in the face of the unrelieved condemnation of this phase of the sport which is the fashion among British and American climbers.

MIRIAM E. UNDERHILL

Snow on the Hills, by Frank S. Smythe. Large 4to., 119 pp., 47 illustrations. London, 1946: A. & C. Black. Price, 25/-.

Another book of mountain photographs by Smythe, his seventh. It consists of two essays, "The Beauty of Snow" and "The Photography of Snow," and 47 of the author's photographs, from the British hills, the Alps, the Canadian Rockies and the Himalaya. The book is large enough (10″ x 12½″) to do the photographs justice, and the reproductions are good.

The essays, 20 pages in length, are a pleasure to read. Few men have had Smythe's opportunity to observe snow in so many places and under such a variety of conditions, and still fewer have had his keen eye, poetic sensibility and photographic ability. Even those who may have felt as he does about snow have rarely taken the trouble to try to put their feelings into words. On the subject of

photography, on specific points of technique mentioned in connection with his pictures, Smythe is sound, practical and not overemphatic. He mentions the causes of failure as well as the secrets of success.

The photographs include nine of British hills—five of the Cairngorms in Scotland. The emphasis here on the use of clouds and sunlight for relieving the monotony of the landscape is pertinent. The pictures of frost, though not outstanding, serve to illustrate the possibilities and easy accessibility of this type of subject.

There are 17 photographs of the Alps, including four intimate woodland scenes of shadows on snow, with good texture. The mountain views are pleasing, but not remarkable. It is well known to many photographers of Nature that early morning is often the best time for taking pictures, and Smythe shows again the value of being out by sunrise. His advice to choose a camera easily operated in cold weather, without too many gadgets, is also well considered.

The photographs of the Canadian Rockies are average, except for three aerial views of Mount Robson's summit, probably the most striking of the whole group. There are also aerial shots of Mount McKinley, but these do not measure up to the Alaskan pictures of Bradford Washburn or Walter Wood.

The 13 views of the Himalaya are varied and of high quality. Smythe may have seen as much of the mountains of this part of the world as any white man, and he has certainly made very good use of his camera in the foothills and on the glaciers as well as in high places. His view of Kellas has caught the effect of wind on snow remarkably well; there is a beautiful picture of Nilgiri Parbat and a good recording of an avalanche on Kangchenjunga. The final picture, a view northeast from 26,800 feet on Mount Everest, is remarkable not only as a fine record of a magnificent scene, but also for the conditions under which it was taken.

BECKETT HOWORTH

The Swiss Without Halos, by J. Christopher Herold. 8vo., 271 pp. New York, 1948: Columbia University Press. Price, $3.75.

Mr. Herold's book is disingenuously titled. *The Swiss Without Halos* is not an exercise in debunking—quite the contrary. But no fault will be found with it on this score by one hardly less *schwärmend* for the Swiss than the author. Readers whose experience and erudition

place them on a footing with Mr. Herold may feel that his facts and his conclusions, so far as these bear on the political, social and cultural history of the Swiss, are open here and there to correction; but this reviewer is content to accept both quite uncritically. Fewer than five of Mr. Herold's 271 pages (index included) have induced this attitude, and the gist of them follows:

"Alpinism . . . is an ultimate expression of individualism and equalitarianism, which it reconciles and fuses. . . .

"In a sport like baseball, the competition takes place between men. In Alpinism, it takes place first of all inside man—for he must conquer his own weakness and fear before he can conquer anything else—and then between man and nature. For technical reasons it is impossible for a single man to undertake a difficult ascension. Thus, as in every competitive sport, there are a team . . . and leader. . . .

"But there is only one team, not two. There is no trace of competition between the humans, only co-operation. Anyone who likes to excel the members of his party in anything but mutual subordination will never make an Alpinist. The way is shown by the strongest and most experienced, but the pace is set by the weakest and the least competent. The ethical code of Alpinism is simple and trite: one for all and all for one. . . .

"In the matter of discipline the spirit is democratic rather than military. The leader is servant, not master; the followers obey because each of them owes discipline to the rest. . . . Thus, the experience of Alpinism makes possible on a small scale what seems to be impractical on a large one: a society of distinct individuals acting as one for their mutual benefit. An ideal ascension is the symbolic acting out of a philosophy of life. . . .

"The ultimate object of an ascension is the self-fulfillment of the individual. It is for his own sake, not for anyone else, that he seeks the danger, vanquishes the difficulties, and ultimately obtains the feeling of release and mystic union upon reaching the goal. Yet as a lone individual he would never be able to experience this self-fulfillment, but would stray and perish on the way. Therefore he renounces his individuality in whatever regards the means toward obtaining self-fulfillment, reserving to himself only the ultimate experience. The philosophy might be summed up in five words: work together and enjoy separately.

"It is a noble philosophy, and it is a noble sport that embodies it."

That Mr. Herold himself is no climber seems evident from his use of the term *Alpinism*. But few of the hundreds—or thousands—of climbers who have given answers to the question: "Why do you climb?" have made as much sense.

EDWARD CUSHING

La Grande Crevasse, by R. Frison-Roche. 8vo., 300 pp., photographic illustrations. Grenoble: B. Arthaud. Price, 300 frs.

A friend living in Madeira told me of Frison-Roche's first book, *Premier de Cordée*. She assured me that the whole reading public of the island was agonizing over the struggles and conflicts of the hero, a young man from Chamonix who feels the irresistible call of the mountains and insists on becoming a guide despite many obstacles placed in his way. Since few of the inhabitants of Madeira have any intimate acquaintance with the high Alps, it was clear that to arouse this interest the author must be a writer of uncommon ability.

Frison-Roche's new book has not the same appeal—largely because of its more obvious subject. *Premier de Cordée* dealt exclusively with the vicissitudes of climbing, with the life of the best type of Savoyard peasant and guide. It was unusual and refreshing to read an absorbing and human book with practically no love interest. *La Grande Crevasse* tells the tale of a beautiful, sophisticated Parisian girl who learns to know and love the mountains during a season at Chamonix. She also learns to love her guide, and subsequently she marries him, only to discover within a year that the self-effacing and strenuous life of a guide's wife is too much for her. The reader is reminded of a certain caricature by the inimitable Samivel, in which a man and a girl struggle up a long, steep snow slope while a miserable little Cupid, plodding roped behind them, mutters, "L'amour, quel métier!"

Otherwise, *La Grande Crevasse* is well worth reading. Frison-Roche knows intimately and loves what he writes about. He makes us see the mountain scenes, hear the falling stones, feel cold and heat, smell the pines, live through the thousand and one sensations of a climb. Brigitte's feelings during her first big day on a mountain will bring vividly back to all of us things we thought we had forgotten. The dangers and accidents are most dramatically dealt with, the characters real and forceful. The writer distills for us in his book much of the best of the Chamonix district. He can recreate its

atmosphere. This is the best substitute for a visit to Savoy that this reader has discovered for a long time.

URSULA CORNING

When the Steel Went Through, by P. Turner Bone. 8vo., 180 pp., 21 photographic illustrations. Toronto, 1947: The Macmillan Co., Price, $3.00.

The author, who died while his book was in press, was one of the few survivors of those who did the original surveying and engineering on the right-of-way of the Canadian Pacific Railroad. Born in Scotland, he reached Winnipeg in the spring of 1883, and was in the van of construction work westward until the last spike was driven. He built bridges over the Bow when Calgary was a city of tents, when Banff had not been thought of, and when End of Track was the designation of the spot later to become famous as Laggan and Lake Louise.

We learn that many of the steel rails were made in Germany and that a few of these marked "Krupp C.P.R. Steel, 1883" are still in use on Calgary sidings. Mr. Bone knew or saw most of the pioneer figures of his time: Father Lacombe, Mahood, Major Rogers, W. C. Van Horne, John A. Macdonald (first premier of the Dominion—seated on the cowcatcher of the engine on his first and only trip over the C.P.R. to the Pacific coast), Donald A. Smith (afterward Lord Strathcona—he drove the last spike), and others.

Engineer Bone established the divisional point, named Gleichen (locally called "Gleesh'n") for a German count who had been prominent in C.P.R. financing; bought corner lots in the center of Calgary for $450; built the roundhouse at Canmore; and made his first and only mountaineering effort in climbing the peak immediately north of that station.

Tunnel Mountain at Banff was actually to be pierced by a tunnel, until a way around it was found. In 1884 the author supervised the grading up Bath Creek to the Kicking Horse summit, and down the western slope to the Columbia. He camped for some time near Moberly's old cabin, and carried through the arduous winter work of building the important span across Mountain Creek leading to Rogers Pass.

When The Steel Went Through is an important record, and the contemporary photographs add much to the interest of the narrative.

J. M. THORINGTON

BRIEFER MENTION

Komm mit mir ins Wallis, by Walter Schmid. 4to., 248 pp., 112 illustrations from photographs by the author. Bern, 1947: Verlag Hallwag. Price, 12 frs. (Swiss).

This book, deservedly in its third edition, has only recently become available in this country. It is the finest publication dealing with the Rhone Valley and its lateral tributaries between its glacial source and the Lake of Geneva. The text treats of the land and its people, the fruitful earth and the struggle for water. The higher levels are given due attention: Zermatt, Saas Fee, the Aletsch Glacier, Zinal, Evolena and Arolla. Pedestrian routes mentioned include the Gemmi, the Bella Tola, glacial throughfares from Saas Fee to Zermatt; ascents of Monte Rosa and Matterhorn are described. Historical chapters cover the thirteenth-century emigration from the Valais, the fate which eventually brought all districts under single jurisdiction, and finally the story of the Napoleonic regime. But one would want this book for the pictures alone, for as a collection they yield to no other in depicting the fascination of this splendid country.

Mountaineering In Scotland, by W. H. Murray. 8vo., xii, 252 pp., 31 photographic illustrations, 5 maps. New York, 1948: The Macmillan Company. Price, $4.50.

None of the Scottish mountains rises much above 4000 feet, and their average elevation is considerably less; there are certainly a dozen summits in our Appalachians that top the loftiest of them by a thousand feet and more. But they are unmistakably mountains from the climber's point of view; their precipitous slopes and serrated ridges afford an endless variety of routes to test the accredited expert's skill and mettle. Such are the routes, followed in summer and in winter, with which Mr. Murray is concerned, and the American climber whose home is east of the Rockies may well envy his British cousin their easy accessibility. Mr. Murray's descriptions are detailed and lively; his is primarily a book for climbers, for great attention is paid to technical matters, to the means employed to overcome the formidable obstacles which the Scottish mountains present at all seasons, but most especially in winter, when snow and ice add Alpine, even Himalayan, complications to

routes difficult enough under the summer conditions. The excellent photographic illustrations greatly reinforce the interest of the text.

On the Hills of the North, by J. Hubert Walker. Square 8vo., xv, 182 pp., 24 photographic illustrations, 6 maps. London, 1948: Oliver and Boyd. Price, 15/-.

Mr. Walker's new book describes his ramblings and scramblings among the highlands of the northwest Scottish coast and its adjacent islands. The author's holidays in this country must have entailed much climbing of a fairly strenuous nature, but it is not on this that the emphasis is placed in his book; the pleasures garnered and described are for the most part those available to the hill walker who has not provisioned himself with a rope and a human belay. Mr. Walker's love of the country and its inhabitants adds warmth and charm to his narrative. The scientist speaks in several appendices devoted to the geological structure of the regions described.

The Matterhorn, by Guido Rey, translated by J. E. C. Eaton. A new edition, revised and with additional chapters by R. L. G. Irving. Square 8vo., x, 278 pp., photographic illustrations, maps and diagrams. Oxford, 1946: Basil Blackwell. Price, 15/—.

Rey's classic monograph, long out-of-print, is again available. The new edition reprints the Eaton translation, with additional material by R. L. G. Irving; the illustrations are new, numerous and admirably chosen. Whymper's *Scrambles* has its unique interest as the personal narrative of the man who first climbed this most celebrated of Alpine peaks, but Rey's more comprehensive and impersonal history has it bettered on many counts. To the Rey text, Mr. Irving has added two chapters which bring the history of the mountain up-to-date, describing latter-day successful ascents of the Furggen ridge and the north face; he has also expanded and made additions of his own to the author's notes.

The Mountains of Snowdonia, edited by Herbert R. C. Carr and George A. Lister. 8vo., xiii, 312 pp., photographic illustrations, maps and diagrams. London, 1948: Crosby Lockwood & Son, Ltd. Price, 15/-.

Another reissue of a standard work, first published nearly a quarter of a century ago. The original editors are still in the saddle, and

their alterations in the original work, while extensive, do not alter its scheme or scope, but serve merely to bring the book up-to-date. *The Mountains of Snowdonia* is not in any important sense a mountaineering book, as readers of this journal are doubtless aware; fewer that fifty pages are assigned to a survey of the walking and climbing possibilities of the district; the rest discuss its history, the development within its limits of science and industry, its literature. The authority of its contributors is not to be questioned by a reviewer without special qualifications in their several fields.

VARIOUS NOTES

United States

Cascades: First Ascent of the N. Face of Mt. Baker. No route on Mt. Baker between the Cockscomb on the N. E. ridge and the Roman Wall on the W. side had been ascended prior to 7 August 1948, when Fred Beckey, Ralph Widrig and Dick Widrig scaled a route facing approximately N. N. W. After crossing the badly crevassed Coleman Glacier, the trio climbed a crusted névé arête to 9600 ft. with crampons. Here a large ice wall blocked the route, the angle varying between 60 and 80 degrees. Beckey chopped steps for about three hours and used six ice pitons for safety. Only once was a natural belay safe—in a peculiar ice cavern. Above the wall, the angle dropped to about 45 degrees, but a layer of dangerous loose snow had to be scraped away and steps chopped in the blue ice beneath. The pointed and chisel-shaped ice pitons, barbed, proved better than the Army tubular type. Near the summit, a leftward traverse between two giant schrunds on a very steep face provided an exit from the arête, which was cut off from the summit dome by a schrund series. The ascent from Kulshan Cabin took ten hours. The steeply pitched sides of the arête make for terrific exposure on the difficult ice wall.

F. B.

Cascades: First Ascent of the S.W. Face of Sloan Peak. On 31 July 1948 Jack Schwabland and Fred Beckey, inquiring into possibilities on the rounded, sheer W. face of Sloan Peak, found that the lower portion of the S. face was climbable. A series of traverses to the left—where the climbers were somewhat miffed to discover goat hair—led to a sharp granite arête on the W. face. This the climbers ascended, alternating in the lead. A series of curious zigzag ledges that cut out a route up vertical cliff bands makes the ascent possible. The descent by the regular route was not easy, for the climbers had to traverse a large snow field in sneakers.

F. B.

Cascades: Tumwater Firsts. On 2 May 1948 Fred Beckey, Ralph Widrig, Joe Hieb and Wesley Grande climbed the imposing Tum-

water Tower on the S. side of the Wenatchee River's Tumwater Canyon. They used numerous pitons in granite cracks. A 70-foot stretch took three and a half hours.

On 9 May 1948 Piton Tower, in Tumwater Canyon, was discovered and climbed by Ralph and Dick Widrig, Pete Schoening and Wesley Grande. The climb up a 100-degree face required the use of 13 pitons for aid. The angle of the initial 40-foot overhang was such that the rappel rope hung out six feet from the base.

F. B.

Cascades: Mt. Adams. It is reported that Robert Craig and C. Molenaar, in September 1948, made a new route up the N. E. face of Mt. Adams.

Cascades: Cashmere Crags. A plane supplying Fred Beckey and his party with aerial deliveries in this area cracked up recently and, with the exception of valuable parts, had to be abandoned.

Idaho: First Ascents in the Sawtooth Range. On 13 June 1948 an eight-man party assembled at Redfish Lake, took a motorboat to the S. end, and made a base camp on Redfish Creek beneath Mt. Heyburn. Present were Joe Hieb, Ralph Widrig, Jack Schwabland, Art Holben, Wesley Grande and Fred Beckey, of the Seattle Mountaineers, and Graham Matthews and Harry King, of the Harvard Mountaineering Club. Inspired by R. L. M. Underhill's article in *Appalachia* (1937), the party closely surveyed the two aiguilles W. of Heyburn from a camp at their base (9000 ft.). On June 14th, after some bitter experiences with eroded granite, five members of the group (Hieb, Grande, King, Holben and Matthews) climbed the lower of the aiguilles via a solid vertical vein on the N. face. The next day Hieb, Widrig, Matthews and Grande assaulted the Grand Aiguille, a grim-looking 600-ft. tower. They circled from N. to S. across the W. face. Hieb led a very difficult crack with an overhang on the upper S. face, and was surprised to find three pitons left by the Durrance brothers in a 1939 attempt. The entire climb was quite spectacular. The rock was excellent (unlike that of the lower aiguille), and good cracks for pitons were found.

Meanwhile, Beckey, Schwabland, Holben and King made a back-packing jaunt toward Red Finger Peak, but were thwarted by storms and soft snow. Several climbs near Alpine Lake had to be

left unfinished because of violent thunderstorms. On June 17th Widrig, Hieb, Matthews and Grande made one of the highlights of the trip in climbing Heyburn's W. peak—for which Underhill had suggested rope-throwing as a possible recourse. From a base ledge on the N. face, the party initiated a rather complicated maneuver. Hieb placed pitons for aid, in minute cracks. When these ran out, he managed to lasso a horn of rock 10 ft. above his head. Widrig then swung up, using Prusik slings, and finished the climb with pitons. Nine pitons were used for tension, and several more for protection.

On the 19th the party made ascents of the three main summits of the Splinter Towers, the only important climbing area between Heyburn and Alpine Lake. Holben and Schwabland climbed the highest—Splinter Tower (10,200 ft.)—by an eight-lead, fourth-class route on the S. face. They found excellent granite. Beckey and King climbed The Thimble and The Steeple. King led The Thimble, using direct aid once on the summit block. Pitons were not used on The Steeple: when they were needed, there was a dearth of suitable cracks. Beckey led a route on the W. ridge involving a most difficult friction slab. The summit had room for only one at a time.

F. B.

Wyoming: New Route on the S. Face of Grand Teton. On 3 July 1948 Fred Beckey, Ralph Widrig and Graham Matthews reached the Lower Saddle at 7.00 A.M., hoping to make a new route up the pronounced couloir between the complete Exum and the Middle S. ridges. In an hour they followed the dike passage and roped. In several hundred feet, close to the lower Exum ridge, difficulties began. They removed several pitons left by Petzoldt in a previous attempt (*Appalachia,* June 1940) and, led by Widrig in sneakers, climbed diagonally to the right on a high-angle face that required protective pitons. A sharp gully, and then a slab, proved difficult and demanded safety pitons. Matthews, in boots, climbed an overhanging ice gully; then Widrig led a steep fifth-class rope length, reaching the base of the prominent snow field at 11.30 A.M. Beckey led the rest of the way, in conditions more dangerous than difficult. On account of avalanche danger, belays had to be made against the rock wall. Once a 200-ft. lead was necessary. After

reaching the summit at 1.30 P.M., the party descended the Owen route. An icy wind and quantities of verglas on the rock had made the entire ascent additionally severe.

F. B.

Wyoming: Southern Wind River Range. Late in June 1948 Ralph Widrig, Fred Beckey, Graham Matthews and Harry King hiked from Big Sandy Opening to a base camp at Shadow Lake. Heavy snow, freshly fallen, stalled climbing; but on the 27th Widrig and King made the first ascent of the granitic 11,500-ft. Overhanging Tower, climbing a route on the 800-ft. S.W. face that required pitons for both protection and aid. Having been stopped by verglas on the seemingly more promising N.W. face, they descended to steeper but drier granite to the S. and climbed to the summit in four hours.

F. B.

Mountaineering in the National Parks. Interest of the National Park Service in mountain climbing in Park areas has steadily increased. The responsibility of Park personnel in encouraging safe climbing and in carrying out rescues is now more clearly recognized. Those in authority at National Park Service Headquarters, as well as various Park superintendents, have shown their interest in the work of the Guides Committee and the Safety Committee of the A.A.C. Most important, this year for the first time a mountain climbing and rescue training school was held for Park rangers from all National Parks. The course was well planned and carried out, though the allotted time was brief. The A.A.C. was represented at this meeting by Robert Craig, George MacGowan and Dee Molenaar. A report by Dee Molenaar follows:

"On 13 September 1948 the National Park Service inaugurated its first service-wide school in mountain climbing and rescue training. Region Four was given the honor of conducting the school on the terrain of Mt. Rainier, Washington. Owing to the fact that mountaineering problems are of mutual concern to many cooperating agencies, invitations to participate in the training program were extended to the U. S. Forest Service, the U. S. Army, Navy, and Coast Guard, the National Ski Patrol, the Seattle Mountaineers, and the American Alpine Club. With a list of 45 representatives present from the above-named organizations, coming from as far

apart as Mt. McKinley, Alaska, and the Blue Ridge, the school got under way at Longmire, Washington, with an introductory talk by Park Superintendent John C. Preston.

"With the increase in recent years of mountaineering rescue activities, as a result of climbing accidents and aircraft disasters, the need was emphasized for an organized plan of mountain casualty evacuation. The purpose of the school was to give such instruction to men who could, in turn, impart and direct such information to others in their home organizations.

"The five-day program, arranged by Paradise District Ranger Gordon K. Patterson and assisted in the rock-climbing schedule by Ernie K. Field, Assistant Chief Ranger of Rocky Mountain National Park, included practical instruction on the rock and glacier terrain, with each phase introduced by a showing of Kodachrome slides and movies pertaining to the particular subject. In-the-field instruction was given in knot-tying and roped party management, proper use of rock and ice climbing equipment, belays, rappels, self and party arrests, crevasse rescue of all types, tying-in of stretcher cases, improvization of stretchers, belaying stretcher cases (in ascent, descent and traverse), construction of Tyrolean traverses with A-frames, and rope bridges. Emphasis was placed on standardizing instruction methods, so that each man could efficiently relay the information upon completion of the school. During periods of inclement weather, indoor instruction was given in the use of new types of mountaineering equipment. Open discussions were held, and the American Alpine Club Safety Report was read. The local problems of each area, along with ideas on prevention of accidents by public education, brought forth a well-rounded knowledge of other Parks' particular difficulties. Wolf Bauer, of the Seattle Mountaineers, presented a discussion of the work accomplished by the Pacific Northwest Regional Mountain and Safety Council and offered suggestions for the organization of rescue teams. The evening programs were taken up by the showing of slides and movies of the many National Parks represented.

"It is hoped that the extreme enthusiasm and cooperation which were in evidence during the school may be indicative of the efficiency with which future mountaineering activities and rescue operations will be conducted."

Alaska

Mt. McKinley. A July report from Alaska tells of an apparently unsuccessful 1948 attempt to climb Mt. McKinley, and further attention to this mountain is shown in letters from the leader of a projected French expedition.

In addition, Bradford Washburn supplies an interesting table showing the length of time certain individuals or parties have spent on Mt. McKinley. Elapsed round-trip times from McGonagall Pass for successful or nearly successful parties follows:

1. Terris Moore (Army, 1942)		6 days, 8 hrs.
2. Herreid-Mills-Daub (1947)		14 days, 4 hrs.
3. Browne (1912)		29 days
4. Lindley (1932)		29 days
5. Stuck (1913)	Harper	35 days
	Main Party	59 days
6. Operation White Tower (1947)	Survey Group	64 days
	Cosmic Ray Group	75 days

Canada

Canadian Rockies: Mt. Monchy and Mt. Hooge. Travelling up the valley of the Alexandra River, one may have glimpses of Mt. Hooge (10,550 ft.), set far back at the head of Amery Creek. This region has been little visited; and even Mt. Amery (10,943 ft.), to the W., has apparently been climbed but once—by the Rt. Hon. L. S. Amery himself. Most climbers have continued on to the peaks of the Continental Divide, such as Alexandra and Bryce, although S. B. Hendricks and Rex Gibson attempted to make a crossing of the ridge by way of the N. Lyell Glacier in 1937.

On 19 July 1948 Fred Ayres, Don Woods and John C. Oberlin forded the N. Saskatchewan River at the Graveyard and continued up the N. bank of the Alexandra River to about one-third of a mile above the point where Amery Creek enters. They were unable to cross the Alexandra sooner. A crossing was here forced with difficulty, and the party made its way rather steeply uphill, following the bank of the creek where possible. Camp was made about even with the first large buttress of Mt. Amery, although a higher camp would have been preferable.

Next day, entering the cirque at the head of the creek, the

NORTH FACE OF MOUNT BAKER

Photo, Clyde Banks

party found the prospect of climbing anything very discouraging. The large upper glaciers no longer maintain any connection with the glacial remnant at the bottom, and a continuous high wall extends around the entire cirque with a number of waterfalls dropping sheer.

The key to access to the upper slopes is a long, steep and very unpleasant scree slope, buttressing the cliffs of Mt. Willerval (10,420 ft.) and leading to some hidden scree ledges (falling rocks). These ledges in turn permit one to gain the glacier below the Monchy-Willerval col. This glacier is crossed, and a snow tongue and rock ridge ascended, until a traverse can be made to the left to reach the steeply sloping glacier on the flank of Mt. Hooge above the cliff and icefall. This is then followed, by a steep ascent to the left, until a bergschrund having an overhanging upper lip bars the way. Ayres, who was leading, cut through this; but it could be avoided by a more circuitous route to the left. The remainder of the climb is an easy snow walk, with the summits of Mts. Hooge and Monchy (10,530 ft.) only a short stroll apart.

Mt. Willerval could obviously be ascended for some distance from the Monchy-Willerval col, but time did not permit the party to investigate the possibilities after its return to the lower glacier. The upper cliffs may prove difficult (it was impossible to see the Ridges Creek side of the mountain), and the ridge may be none too easy to follow to the summit.

J. C. O.

Canadian Rockies: Mt. Baker and Mt. Thompson. Mt. Baker, new route by N. ridge, 1948: D. Bidwell, R. Clapp, L. M. Erskine, Jr., A. Griscom, P. Jackson. From A.C.C. camp at Peyto Lake across col between Mt. Baker and Trapper Peak to N. ridge of Mt. Baker; from col to summit (3.5 hrs.) by N. ridge (moderately difficult rock, requiring rope). Descent by N.E. ridge and scree to col. There were no records of ascents between 1933 and 1948.

Mt. Thompson, new route from Peyto Lake, 1948: L. M. Erskine, Jr., and party from A.C.C. camp led by W. A. D. Munday. Ascent by steep glacier (not on map) lying E. of N. ridge of Mt. Thompson. The glacier meets the ridge about halfway to the summit. The ridge is followed thereafter.

J. M. T.

MODERN AIDS TO ROCK CLIMBING

Top: piton hammer and contraction bolts. Bottom: wrench, extra bit, drill bit in sleeve. See page 230

Photo, R. Widrig

Canadian Rockies: Thoughtless Climbing. In July 1948 a party of American climbers left their car parked at the Columbia Icefield chalet and departed for the Icefield without stating their exact destination. Several days later, since they had not returned, a search was made, involving considerable effort and anxiety. It was finally discovered that they had gone down to the Saskatchewan Hut. Apparently they were well able to take care of themselves and had been in no danger. Proper registration would have prevented all concern.

A parallel case in the Alps was not without penalty. Herr X was staying at a pension for winter sport. On January 1st he went skiing by himself and by midnight had not returned. The local rescue station of the S.A.C. went into action, only to find on the following day that Herr X had spent the night in a hotel of a neighboring village, without notifying his own pension. Herr X refused to pay the expenses of the rescue party. Thereupon the S.A.C. brought suit under a legal clause which makes it a duty for such a search party to go out when there is reason to believe that an individual's life is in danger. That Herr X was not actually in danger does not alter this. Herr X attempted to dodge the issue by stating that if he had actually been in the open he would have frozen to death before the search party had started. This argument did not impress the judge, who ruled that the whole affair could have been avoided by a telephone call, and assessed the costs on Herr X.

J. M. T.

Canadian Rockies: Swiss Guides' Tariff for Climbing.

Mt. Victoria	2 days	$40.00
Mt. Lefroy	2 days	40.00
Mt. Hungabee	14 hrs.	40.00
Cathedral Mountain	12 hrs.	30.00
Mt. Biddle	13 hrs.	30.00
Mt. Aberdeen	13 hrs.	30.00
Mitre Peak	9 hrs.	30.00
Mt. Temple	9 hrs.	20.00
Mt. Huber	12 hrs.	20.00
Mt. Hector	12 hrs.	20.00
Pinnacle Mountain	10 hrs.	20.00

Mt. Odaray	9 hrs.	20.00
Eiffel Peak	7 hrs.	20.00
Mt. Niblock	8 hrs.	20.00
Mt. Whyte	9 hrs.	20.00
Mt. Yukness	7 hrs.	20.00
Mt. Schaffer	8 hrs.	20.00
Devils Thumb	6 hrs.	15.00
Three Needles	7 hrs.	15.00
Wiwaxy Peaks	7 hrs.	15.00

Selkirk Range: Battle Group. Successes of 1947 in the Battle Group are further described in two papers: *C.A.J.*, XXI (1948), 1 ff. and 140 ff.

In 1948 B. G. Ferris, Jr., A. J. Kauffman, 2nd, and W. L. Putnam followed S. B. Hendricks' 1946 route into the Granite (Adamant) Group and three weeks later emerged at Flat Creek, eight miles W. of Glacier, B. C. Their expedition is described in an article in this issue, and the route is there summarized.

This route was planned by Hendricks, who in 1948 followed it in the reverse direction, accompanied by A. C. Fabergé, D. Hubbard, C. Scoredos and A. Peterson. The two parties met at Moberly Pass. Hendricks' party made first ascents of Martha and Eric, two peaks W. of Tangier summit, and of Silvertip, in the Sir Sandford area. They also ascended Mts. Holway and Sorcerer, Belvedere and Thor in the Sir Sandford area, and (from a final camp N. of the Adamant Group) Turret.

J. M. T.

Selkirk Range: Trout Lake Group. The Trout Lake Group in the sourthern Selkirks was visited in 1948 by R. Clapp, L. M. Erskine, Jr., and A. Griscom. Erskine and Griscom ascended Fays Peak (9260 ft.), the highest point on Silvercup Mountain. On the summit they found a large cairn, and were told at Trout Lake that the climb had been made in 1903 by a man named Brock. This would appear to be R. W. Brock, of the Geological Survey, whose report on the Lardeau District was published in the same year.

The route is from Ferguson Creek, up Brown Creek and along its N. branch to timberline, thence on the height of land S.E. to Fays Peak. The ascent is over scree slopes and does not require a

rope. The two illustrations accompanying Howard Palmer's article on Nettie L. Mountain (*A.A.J.*, I, 40-44) are panoramic and show the range from Mt. Templeman to Silver Mountain.

J. M. T.

Cariboo Range. This range is now officially the McLennan Range (*C.A.J.*, XXI, 94). The first crossing was made in 1947 by R. T. Zillmer and his son, from Tête Creek to Canoe River, thence to the N. Thompson and out to Gosnell (*C.A.J.*, XXI, 21). A glacier heading in the only large lateral branch of Tête Creek was named Gilmour Glacier.

J. M. T.

Purcell Range. Ascents in July 1948 by F. Beckey, J. Hieb and R. Widrig are described in an article in this issue.

Early in August four California climbers were caught in an electrical storm near the summit of Bugaboo Spire. Two were injured fatally, and the others suffered second-degree burns.

J. M. T.

Europe

A Sorry Season. Very bad weather severely limited climbing in the Alps during the summer of 1948.

Early American Ascents in the Alps. Through the efforts of Mr. Oscar Houston, the A.A.C. has received an unusual inscribed alpenstock, the end of which is turned in the form of a chamois horn, though it is entirely of wood and continuous with the shaft. The spiral inscription reads: "D. P. Sackett, Juillet 1873, Chamonix-Montanvert, Jardin, Mer de Glace, Mauvais Pas, Chapeau, Source d'Arveiron, Gl. des Bossons, Pierre Pointue, Mont Blanc dessous laiguille du Midi." The last undoubtedly means that the owner reached a point on the Glacier des Bossons near the foot of the Aiguille du Midi, and does not imply that he went either to the Grands Mulets or to the summit of Mont Blanc.

Darius Parmalee Sackett was born at Tallmadge, Ohio, on 22 September 1842; he died at New Hartford, N. Y., on 1 April 1912. He graduated from Yale in the Class of 1866. After graduate study he taught for two years at Genesee Academy, N. Y., and then was

principal of Leicester Academy, Mass., for three years, and of Hopkins Academy, Oakland, Cal. For a time he engaged in stock-raising at Santa Barbara, but about 1876 established the Sackett School in Oakland. In 1896 he removed to Brooklyn and for 18 years thereafter was connected with Charles Scribner's Sons. There are now no surviving relatives, and no further information on his Alpine tour can be obtained. The name of Sackett does not occur in any of the published lists of those who ascended Mont Blanc.

Accompanying the alpenstock there is a tourist cane inscribed "Interlaken" and surmounted by a chamois horn.

J. M. T.

Alpine Museum and Library at Munich. We have received from Dr. J. Monroe Thorington a letter addressed to him by Dr. H. Bühler, librarian of the Alpenverein. Excerpts are published herewith:

"The Alpenvereinsbücherei was destroyed by bombs and only a little part of the 60,000 volumes of it has been saved.

"Also the building of our Alpine Museum at Munich has been burned down, but 75% of its objects could be saved.

"The Alpenverein itself since 1945 is divided in an Austrian and and in a German one. In Germany only the former sections of the Alpenverein are existing as simple selfstanding clubs without a head. But we hope to have soon one again by the future reunion of the three western zones.

"In Munich we meanwhile try to rebuild the Alpenvereinsbücherei and the Alpine Museum and therefore we intend to install again our exchange of publications as before the war. From 1942-1948 we had no more publications of the Alpenverein. Since April 1948 we have again our 'Mitteilungen.' In 1949 the revival of our 'Zeitschrift' is planned . . . "

Asia

Sinkiang. In October 1948 the *New York Times* reported an attempt on 18,000-ft. Bogdo Ola by E. E. Shipton and H. W. Tilman, well-known English climbers. According to reports, the climb was attempted from both the S.E. and N.E. sides. A camp was established at 15,500 ft., but the summit was not reached.

Lebanon. Anderson Bakewell writes of climbing 8620-ft. Mt. Sannine in December 1947.

Of General Interest

Contraction Bolts. Ralph Widrig and Joe Hieb, of the Seattle Mountaineers, have developed a contraction bolt, shown in the illustration opposite page 225. Fred Beckey writes:[1]

"We have ½-inch star drills, cut down to five inches in length, fitted into a ⅞-inch octagonal sleeve. A set screw allows easy changing of drills. The bolt is ⅝ of an inch in diameter and three inches long. Two saw cuts, at right angles, are made at one end. These 1¾-inch cuts taper in width from ⅛ to 1-16 of an inch, making the bolt diameter half an inch at one end, tapering to 9-16 of an inch. The other end is flattened to ⅜ of an inch and has a welded ring for karabiners or slings. A bolt can be put in hard granite in 13 minutes, supporting over 2000 lbs. Inserted completely, it can not be removed and can serve as an excellent belay point in the absence of piton cracks. To support one's weight on a flawless pitch, one can drill a shorter hole, taking from five to eight minutes.

"The use of bolts and cod lines in mountaineering is limited to exceptionally difficult stretches or sheer monoliths. I do not believe in blacksmithing a route up a cement wall—that is not climbing—but recently we have met peaks that would be impossible even with aid pitons. The choice remains: to retreat, or to use a few bolts to overcome a flawless pitch. Now that there is an efficient way to overcome such pitches, an old question arises: how far shall we go in using artificial aids?"

He adds, "We recently climbed two peaks in the Cashmere Crags that required rope-throwing to scale summit blocks—they were hopeless any other way. If that is unethical, these two peaks I am sure would forever remain unclimbed. In this same area are a score of other peaks that appear to have stretches that will require aids beyond piton usage. But I am sure that in time climbers will knowingly tackle them rather than ignore them."

Motion pictures: "Black Narcissus" and "Climbing the Matterhorn." This is the first time that professional motion pictures have

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[1] Cf. page 117 above.

been reviewed in the *A.A.J.*, but two which have recently come before our eyes require some mention.

Black Narcissus, taken from Rumer Godden's novel (1939), tells of a group of Protestant nuns who attempt a mission in an ancient deserted palace in the Himalaya, with Kangchenjunga as the background and the ever-present sweeping gales of this high country. It is the story of a failure, for the winds and the loneliness result in various outbursts of hysteria and madness in the nunnery, whose inhabitants, thus additionally tormented, can not entirely forget the earthly passions of a life they have renounced. This will be particularly clear to those who have read the moving book, but here one can only praise the artistic settings in which the British company has framed the tale—the noteworthy company including Deborah Kerr, Sabu, Flora Robson, and the British agent whose name eludes us. To one who has never been in India, the local color is beautifully and artistically carried out, the palace exteriors and interiors giving an extremely true effect. As there are apparently no accessible color films of Kangchenjunga, the backgrounds are all artificial, but they are well done and effectively suggest the light and immensity of great mountains. One wonders why, with such success, a color photo of Eiger, Mönch and Jungfrau is used in the main caption of the film.

The Academy Award given *Climbing the Matterhorn* is presumably for its excellent photography in Ansco color film. The opening scenes of the village street of Zermatt, the procession of goats, the children singing beside the ancient hay-huts, the porters and omnibuses at the station, all awaken one's nostalgia for a mountain land lost to us in the war years. But then we are asked to be content with the silly story that follows. Not one foot of the incidents takes place on the Matterhorn itself, although that is said to be the locale of the action. After some wandering on the Gornergletscher the party of three, two tourists and a guide, are found hard at work in rocks quite evidently of the Riffelhorn. The guide falls and pulls down the lady who is in the middle of the rope, but the stalwart husband, ascending last, holds the party—his wife and the guide remaining *suspended in air* through an entire night, during which time an enormous rescue party lopes like a group of Keystone Comedy cops from the center of Zermatt to the scene of the accident. As the guide wears the large badge of the S.A.C., one understands

why members of that organization objected vociferously when the film was shown in London. It is disheartening to the mountaineer to see such dishonest work, for the film began with great integrity and could easily have been a thing of entrancing beauty.

J. M. T.

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